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COMPUTERWORLD

Job seekers scan electronic horizon

By Ellis Booker

Control engineer Don Brown had been looking for a new job for two years. Then he accidentally stumbled onto a CompuServe jobs database called the Interactive Employment Network.

Three weeks later, Brown had a job at Assembly Systems, Inc. in Indianapolis. "The guy I was interviewing with had *also* found his job with IEN," Brown said.

Posting jobs via on-line services is not a new phenomenon. The IEN, run by E-Span, Inc. in Indianapolis, has been on public data networks such as CompuServe and America Online for four years.

What is new — and occurring at breakneck speed in the past few months — is the movement of these job and recruitment resources to the Internet, the global network used by an estimated 20 million to 25 million users.

Many of the newest services are using World-Wide Web servers — accessible by graphical browsers such as Mosaic — which can display graphics and tempt potential employees with video clips of company facilities or a welcoming message from the chairman.

To tap into that portion of Internet surfers who may also be cruising for gainful employment, E-Span in late August established its own Web server. It currently boasts about 1,500 job postings, mainly in the data processing and information services fields.

"The potential is outstanding," said L. Patrick Scheetz, director of the Collegiate Employment Research Institute at Michigan State University in East Lansing and an expert in on-line job searches.

Job seekers, *page 133*

Re-engineering the Workplace

SPECIAL QUARTERLY REPORT

Worker resistance at all levels is driving up re-engineering failure rates, according to IS chiefs and consultants. To cope, **BILL HOWARD** of Inland Steel Industries (shown) and other leaders promote teamwork and benefits. **PAGE 94.**

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Notes Express may derail developers

By Lynda Radosevich and William Brandel

In its first attempt to break away from its one-price-fits-all strategy for Notes, Lotus Development Corp. has angered a vocal segment of key Notes application developers, sources within Lotus confirmed last week.

At issue is Notes Express — a $60 scaled-down version of the $495 full-featured Notes — which several developers claim offers customers the wrong subset of Notes capabilities.

Developer sources, speaking on condition of anonymity, contended that Notes Express undermines corporate and vertical application developers. These developers, at Lotus' urging, used the Notes macros and forms development tools to create customized Notes applications, which do not work with Express.

This situation leaves the vast majority of the 2,200 third-party Notes developers unable to use either Express' price incentive or their custom applications to entice users to the groupware platform, Lotus sources admitted.

"The third-party developers are spitting mad," a Lotus source said.

Introduced in mid-September, Express includes electronic mail and five miniature group applications, such as a group discussion database, but no customization tools. It does not allow users to access any existing Notes applications running in their companies.

If the existing Notes applications were written outside the Notes environment using tools such as Notes VIP and Microsoft Corp.'s Visual Basic, then Express customers would be able to use the underlying Notes data but not the interface.

"We acknowledge that the group of developers who have implemented highly customized

Notes, *page 16*

CA bolsters Unicenter with freebies

By Thomas Hoffman

Not to be outdone by trinket-toting rivals at this week's Unix Expo trade show, Computer Associates International, Inc. will unveil a program that offers customers more than $35,000 in free training and workstation and server versions of its CA-Unicenter/Star systems management package.

Under the worldwide program, customers can be trained on CA-Unicenter/Star, an OS/2-based package that administers multiple computing environments from a single point on an enterprise.

After successful completion of the program — and after an executive from the user company attends a CA-Unicenter sales briefing — participants are entitled to one free copy of the workstation package per trainee.

Another piece of the giveaway is an IBM MVS or Unix server version of the Unicenter/Star software (see chart, page 133).

Workstation versions of CA-Unicenter/Star will begin shipping this week for $995; the IBM MVS

CA, *page 133*

Suite success benefits users

By William Brandel

Software vendors selling PC suites are banking on the adage that everything old can be made new again. Users, on the other hand, are looking to bank on a few price breaks in the bargain.

With most of their new wares already on the table and with the rollout of applications for the next generation of Windows still one year away, manufacturers have turned to rebundling existing suites.

The idea is to boost revenue by tempting users with price promotions. As a result, users can expect to pay $40 to $80 per application, whether purchased individually or in a suite.

Even though the bundles represent little more than product window dressing, users said they welcome them.

"If they continue to deliver software [in a way] that results in a low price, we won't have a problem with it," said John Loughry, MIS director at Woodford Manufacturing Co. in Colorado Springs.

The first volley of promotions, fired in recent weeks, includes the following:

Suites, *page 26*

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What's Inside

October 3, 1994

The History Of The Future

The Arpanet's 25th Anniversary

Last month marked another milestone in communications history: The forerunner to the Internet turned 25. Its founders reunite to talk about the future. See In Depth, page 101.

NEWS

■The **Census Bureau** is phasing out its old mainframes and adding laptops, kiosks, computer telephony and imaging technologies for Census 2000. *Page 4*

■**The object wars** continue as competing vendor groups push for different communications pathways as the industry standard. *Page 8*

■Serial **infrared communications** is coming to a PC near you as major vendors begin to add the technology to their printers, notebooks and desktop PCs in the next six months. *Page 10*

■**Digital**'s software enhancements may provide clues to its overall strategy; meanwhile, users are cautiously optimistic about the new licensing strategy. *Page 12*

■New **notebook** technologies will drive more users to adopt portables as their sole PCs. *Page 14*

■**Banyan** plans to provide five key networking services — including messaging and directory — on Vines and other network operating systems such as Novell's NetWare. *Page 15*

■**CIO experience** is increasingly becoming a prerequisite for top corporate posts. On the flip side, nontechnical managers are more frequently becoming IS chiefs. *Page 16*

COMPUTER INDUSTRY

■**Paul Allen** positions himself as a driving force in building the information superhighway. *Page 30*

DESKTOP COMPUTING

■Novell's new version of **Quattro Pro** could be too little, too late. *Page 39*

WORKGROUP COMPUTING

■A new Ethernet workgroup switch hits the streets with an aggressive price point. *Page 57*

ENTERPRISE NETWORKING

■**Hewlett-Packard** adds Internet and other networking hooks to its MPE/IX operating system. *Page 65*

LARGE SYSTEMS

■**Sun and Amdahl** deliver on promises of an industrial-strength version of Solaris. *Page 77*

APPLICATION DEVELOPMENT

■The time-tested techniques of testing, planning, managing and architecting applications are all the more critical in the brave new world of **client/server development**. *Page 83*

MANAGEMENT

■Eric Christensen found a way to measure how effectively **Ameritech**'s IS organization was supporting the company's business objectives. *Page 87*

CAREERS

■Medic alert! Hiring is up at many **health care organizations**, and while technological hotbeds they're not, demand is high for relational database and networking know-how. *Page 111*

MARKETPLACE

■Four ways to build flexibility into **software site licenses**. *Page 121*

COMMENTARY

■**Charles Babcock** says IS must offer users a more flexible view of data. *Page 6*

■**Paul Gillin** credits Lotus for one groupware victory but warns that the vendor still faces a challenge in making Notes a long-term standard. *Page 32*

■**Michael Cohn** calls for the name police to leave software engineers in peace. *Page 33*

■**Patricia Seybold** says Novell has to remain an option to the Microsoft machine. *Page 33*

Company Index ..... *Page 130*
Editorial/Letters to the editor ..... *Page 32*
Sept. 30 Stock Ticker ..... *Page 131*
How to contact Computerworld ... *Page 134*

Executive Briefing

Multimedia seems to be entering a higher-profile phase — or so it seems from all the vendor activity going on. Developments include the following: an agreement to integrate Oracle's multimedia software with Lotus' Notes package; a new Intel chip set for LAN users; multimedia support for the Pentium; and handwriting recognition that got a bit more, well, recognizable. *Pages 4, 12 and 44.* Also, workflow tools, hybrid systems and higher-density storage devices were the rage at the recent Document Management & Imaging Expo conference. *Page 53*

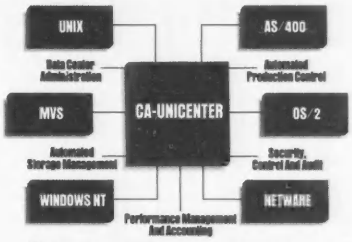
Lotus battles with developers who claim the scaled-down version of Notes is the wrong product for the wrong crowd, and it may have a fight ahead of it to make Notes a long-term standard. *Pages 1 and 32.* At the same time, software to manage Notes installations is on its way. *Page 56.* Meanwhile, analysts are cutting their earnings projections for Lotus because of its weak performance in Europe and a drop in its DOS applications business. *Page 16*

After failing to make a dent in Microsoft's dominance of the desktop, Unix vendors are taking the high ground at this week's Unix Expo in New York. Many are displaying top-of-the-line SMP servers and software for better performance. *Page 6.* Computer Associates will introduce a program including free training and free copies of its Unicenter/Star workstation and server packages as the vendor seeks to stretch its lead in the systems management market. *Page 1.* Meanwhile, Hewlett-Packard announces a software bridge between applications running on IBM mainframes and those running on HP 9000 Unix computers. *Page 53*

IBM will raise its client/server database stakes this week when it details new administration tools that support Oracle and Sybase databases in addition to DB2. *Page 14.* Oracle's low-end database strategy confuses some users, who cite product overlap in some spots and holes in others, and AT&T's Teradata unit keeps providing upgrades even as customers keep an eye on the competition. *Pages 7 and 77*

The 5th Wave *by* Rich Tennant

1. Standardize On A Common GUI Interface That Makes It Easier To Use, Reduce Training Costs And Boost Productivity.



3. Choose A Client/Server Application That's Interoperable, Scalable and Portable.

4. Demand An Open Solution That Supports All Key Industry Standards And Protocols.

2. Protect All Your Data With Bulletproof Security Software That Supports Every Platform And Operating System Across Your Entire Enterprise.

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Census 2000 gears up with systems overhaul

By Mitch Betts
WASHINGTON

The U.S. Bureau of the Census — the cradle of the computer age — is planning dramatic changes for the year 2000 census. Aging Unisys Corp. mainframes are heading out as innovations such as laptop-toting interviewers, document imaging, voice-response systems and kiosks are marching in.

The overhaul is intended to boost public response and data accuracy while the bureau copes with congressional demands to curb the spiraling cost of the decennial exercise, which cost $2.6 billion in 1990.

The system changes will come none too soon because key decisions on Census 2000 must be made by December 1995.

New techniques will be tested next year that "may ultimately lead to reinvention of the way we conduct censuses," said Harry A. Scarr, acting census director, at a congressional hearing last week.

On the front lines, the bureau is exploring such options as multimedia kiosks for census information and laptop computers for an army of field workers. Interviewers will make computer-assisted phone calls to people who do not return their surveys — at a cost of $3.55 compared with $10 for an interview by a field enumerator.

The Census Bureau is trying new approaches to rebound from what critics said was a disastrous 1990 census. "The 1990 census missed millions of persons and contained millions of errors," noted a U.S. General Accounting Office critique.

One major change this time around is that the Census Bureau has enlisted the help of the U.S. Postal Service to create a master address file, rather than create its own mailing list every 10 years. In addition, the bureau plans to use administrative databases from other federal agencies, such as the Internal Revenue Service and the Social Security Administration, to supplement its data.

Different approach

In fact, a National Research Council panel last month urged the Census Bureau to consider using administrative records to handle the whole census job in 2010. But the panel acknowledged that such a move could raise privacy issues and the specter of a big government dossier.

A more practical problem is that the government's administrative records are "notorious for being inaccurate," so it would be better for the Census Bureau to get its data directly from citizens, observed Robert Ellis Smith, publisher of the "Privacy Journal" newsletter in Providence, R.I.

Several independent watchdog agencies said the Census Bureau is on the right track for Census 2000. But controversy is brewing over the bureau's flirtation with the idea of dumping the long-form census questionnaires sent to one-sixth of U.S. households.

The goal would be to reduce the burden on respondents, who must answer dozens of questions about income, jobs, education, commuting patterns and the like. Yet that demographic data is a gold mine for businesses and public agencies that use geographic information systems (GIS) for local planning, marketing and site-location decisions.

One GIS user said, "Alas, just as we get where we can use [census statistics] efficiently, they dump them in the interests of overall efficiency."

Regaining ground

Arnold A. Jackson, the agency's top information technology executive, acknowledged that the Census Bureau's leadership in information technology slipped in the 1980s because it held on to proprietary mainframes for too long. Now, the technology strategy is distributed processing and open systems, he said.

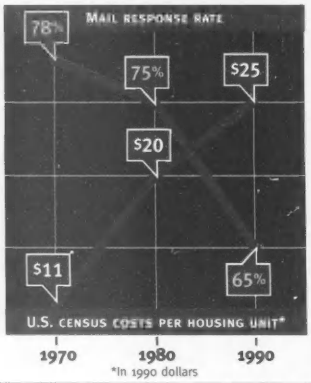
In addition, the Census Bureau will test the use of document imaging systems, along with optical mark sensing and perhaps optical character recognition software, to capture data from the questionnaires.

For back-office operations, the bureau is migrating from its Unisys 1100 mainframes to a bevy of Digital Equipment Corp. VAXs that can be upgraded to Alpha AXP processors, Jackson said.

One mainframe was retired in January, the next will go in March, and a third will be unplugged in 1997, he said. Because there is still some raw number-crunching to be done, the bureau is testing a Convex Computer Corp. supercomputer, Jackson added.

Con-sensus

WHILE SURVEY COSTS PER HOUSEHOLD ARE RISING, HOUSEHOLD RESPONSES VIA MAIL ARE DWINDLING



Source: U.S. General Accounting Office, Washington

Lotus, Oracle drop swords

Firms to integrate Notes with Oracle software

By Lynda Radosevich and Kim S. Nash

In a move that could cultivate an industrial-strength image for Notes among information systems managers, Lotus Development Corp. and Oracle Corp. agreed last week to integrate the groupware package with Oracle's forthcoming multimedia database software.

The first fruits of the pact, expected early next year, will be enhanced versions of existing integration software such as DataLens. Though short on details, officials from both companies said they will build a bridge that would go further than the more generic SQL access tools now available from Lotus and third parties. Those tools are not specific to Oracle and require intense systems integration efforts.

Common customers pushed the vendors into the deal, said Kitty Cullen, vice president of new media product marketing at Oracle. "There was clamor from both ends but more from the Notes end," she said.

"My boss is an Oracle nut, and everything that I'm doing with Notes and VIP is always considered rebel development — maverick stuff," said Lance St. Clair, a systems manager at Frito-Lay, Inc. in Plano, Texas. A marriage between Notes and Oracle would improve Notes' image as a serious application development platform within the company, he added.

"An integration with Oracle would be beneficial because it would ease the pain of telling somebody using Notes within the organization, 'I'm sorry, but Notes isn't where it's at anymore'," said Donald Brett, chief information officer at Oracle site Detroit Edison.

Dual approach

The deal is both a countermove to Microsoft Corp.'s attacks on the server applications market and a response to customers' demands, users and analysts said. Several analysts predicted the arrangement will develop into close marketing in sales arrangements and possibly into a full-fledged merger of the companies.

Still, some observers speculated that Oracle might use the partnership to convert Notes users to Documents, Oracle's recently announced groupware offering. "This could very well be a Trojan horse deal for Oracle," said one former Lotus executive who requested anonymity.

Even with such suspicions hovering, the agreement marks a dramatic shift from Oracle's and Lotus' previously aggressive stance against each other.

Notes and Documents "will absolutely overlap" technologically, acknowledged Andre Boisvert, Oracle's senior vice president of worldwide marketing. "We will step on each other's toes, but we have to be mature enough" to manage conflict, he said.

But before users get too excited, the companies need to flesh out the details and provide some tools that make it much easier for in-house developers to build applications, said Norman Weizer, a managing consultant at Electronic Data Systems Corp. in Dallas.

Highlights of the pact include the following:

- Notes will continue to access its own document storage service, but Notes users will also be able to store data in the three databases under Oracle Media Server, Oracle 7, Oracle Text Server and Oracle Video Server.
- The Notes user interface will remain the same until Notes Version 4 ships in the middle of next year, when it will be generally enhanced to natively serve as a front end to many types of network resources, including Oracle servers and the Internet.

Potential payoff

The pact between Lotus and Oracle could benefit Notes users most

WHAT ORACLE BRINGS TO NOTES

- Transactional data processing capabilities
- Mass storage for images and video objects
- Ability to archive and browse documents across the enterprise

WHAT NOTES BRINGS TO ORACLE

- Notes interface
- Notes workflow capabilities

Surfing the 'net

Lotus plans to deliver two-tiered access to the Internet in Notes Version 4. Called InterNotes, the client portion of Notes will serve as a network interface to all network resources, including the Internet's World-Wide Web and Oracle databases. On the server side, technology from Corporate Software, Inc. will let Internet clients such as Mosaic access Notes servers.

Corrections

Wellfleet Communications, Inc. has not been struggling financially as was reported in the Sept. 12 *Computerworld* Buyers' Scorecard. Its revenue and profits have been growing steadily for the past four quarters.

The salary for CIOs working in the nonprofit sector should have been reported as $64,118, in the *Computerworld* Salary Survey, Sept. 5.

[1991]

Oracle SQL Forms 3.0

[1992]

Oracle Case 5.0

[1993]

Oracle7.0

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ORACLE

Unshackling corporate data

In listening to the laments of end users, I am struck by how much data we capture and how far we are from putting it into a form that satisfies end users.

Database management systems designed to produce one set of reports are asked to produce something different. Executive information systems provide answers, but the answers don't seem pertinent to the business conditions at hand.

A set of queries meant to run against a huge database needs to be revised and run again. An iterative query process would keep asking questions until it got them right, but iteration is both resource-intensive — even with massively parallel processing — and politically difficult to attain.

"Those irrational users," the database administrator must frequently say. "They always want something we can't supply."

What they want is information that reflects the underlying patterns of the business, the thing invisible at the surface but discernible within the strata of data. American Express uses parallel processing to search for patterns among customers who drop it as a credit card company. It then uses the predictive value of the data to stem further losses.

Such an excavated view provides knowledge of the business, or information that can be analyzed and turned into knowledge. That view is seldom achieved because company officials at the outset define the information in the narrowest possible way.

The Mere View

Users want the data to be loosely defined and capable of expressing shifting and complex relationships.

Charles Babcock

Users want the data to be loosely defined and capable of expressing shifting and complex relationships. All related data should be grouped together, of course, and accessible from many angles. All of these expectations are defeated by the hermetically sealed containers into which we pour our information. Users might as well be Haight-Ashbury hippies seeking wisdom from a man in a straitjacket.

Executive information systems (EIS) have attempted to get around these restrictions by seizing reams of data, digesting it and presenting crisp summaries. But as a large database user pointed out recently, an EIS must average the data, and average data "leads to average companies" vulnerable to competition.

Relational databases have given us the unpredicted ad hoc query, but the query is lodged against tables that have reduced relationships to their simplest values. As tables grow into millions of rows and relationships multiply, the queries become more complex. The power of the mainframe pales before the task, and massively parallel processing may be available for selected tasks but is not likely to be available soon to end users.

IS might begin reducing these long odds by taking a more flexible view of corporate data. As a kind of wild-card way of looking at the problem, why doesn't IS create an internal Internet, putting as much corporate data on wide-area servers as it dares? Many servers would be accessible by anyone in the company. Some servers would be restricted to those with authority and clearance to view sensitive data. And some data would remain behind the walls of the mainframe fortress.

But much "useless" data might prove useful in unexpected ways if people with line responsibilities could review it.

Moving toward an object-oriented strategy, at least for data analysis purposes, would give IS the means to generate more user-defined data types in new and more related groupings.

Giving users the opportunity to comment on-line might stimulate hitherto unheard of discussions on where business conditions are changing and why, much as the Internet prompts on-line discussions about speeches and events.

Although security would remain a concern, there would be some trade-off between data security and being secure in the knowledge that your business is keeping up with change.

Babcock is *Computerworld*'s technical editor. His MCI Mail address is 575-2737.

Unix servers take center stage

By Jean S. Bozman

After failing to make a dent in Microsoft Corp.'s dominance of the desktop last year, Unix vendors are taking to high ground at this week's Unix Expo in New York.

Many vendors will be trotting out their top-of-the-line Unix symmetrical multiprocessing (SMP) servers along with new software to improve performance. At the same time, they will be stressing coexistence strategies for Windows clients as well as interoperability with PCs and mainframes.

UNIX EXPO
THE OPEN SYSTEMS SHOW

The timing is in step with the market as the annual growth in Unix server shipments soars at rates of 20% to 30% or more for some companies, industry analysts said last week. And vendors are beginning to ship more mainframe-like systems management software and work load-balancing features in Unix operating systems.

At the show

New application and database servers will also be evident at Unix Expo. As IBM introduces its long-awited SMP servers, Sun Microsystems, Inc. will announce new clustering and high-performance capabilities. Several Unix systems vendors will also talk about their plans to support the Oracle Corp. 7.1 Parallel Server.

All this activity is related to users' demands for high-end SMP machines capable of running entire businesses.

"The vendors are saying, 'We're going to stick with what we know how to do,'" said Paul McGuckin, a senior Unix analyst at Gartner Group, Inc. in Santa Clara, Calif.

"The whole desktop orientation of the Unix love-ins of the last couple of years was a rearranging of the deck chairs on the Titanic," McGuckin added. "No matter how well they executed, they couldn't substantially raise their market share."

Users said the Unix vendors' renewed focus on SMP gets to the heart of a new computing architecture built around networked Unix-based application servers. PCs are attached as clients, and mainframes are linked through gateway software. Without SMP, IBM's biggest IBM RS/6000 servers were constrained by chip speed. And without performance-boosting software, Sun's SPARCcenter 2000 SMP servers were unable to tap all the power of 16 to 20 onboard CPUs.

"The value for us is performance," said Dave Bennett, vice president of information systems at Dunkin Donuts, Inc. in Randolph, Mass., which uses a pair of four-processor SPARCcenter 2000s.

"It sounds like there is a new ceiling in the Sun product line," Bennett said. "We're not at the ceiling yet, but it's good to see that they're about to release a product that raises that ceiling for us."

Other users said they want more systems management and security software before moving mission-critical applications from mainframes to Unix servers.

Unix customers said they also expect the next revisions to Sun's Solaris 2.x, IBM's AIX and Hewlett-Packard Co.'s HP/UX operating systems to boost performance through better use of system resources. Without special techniques, Unix processes keep some of the processors extremely busy while others wait.

"We have been running literally all of our business on Unix systems for four years — everything remote, central, the works," said Gordon Kerr, senior vice president of MIS at Hyatt Corp. in Chicago. "Can it be done? Yes. Can I think of 15 things I'd like to have on those systems? Absolutely."

Among the missing pieces, he said, are automated systems management tools and failover features for high availability.

CA announces freebies with Unicenter at Unix Expo. See page 1

Showtime shuffle

Some 30,000 attendees are expected to be at the Unix Expo this week at the Jacob J. Javits Convention Center in New York, where more than 400 vendors will exhibit products.

Interoperability is a primary theme, show director Don Berey said. "In many cases, Unix has become the backbone of the organization," he said. "You're dealing with an increasing number of products that facilitate using Unix in a mixed environment."

Product highlights at the show include the following:

- **IBM** plans to formally introduce its PowerPC-based Unix SMP servers, the "Pegasus" servers that were codeveloped by IBM and Bull Worldwide Information Systems in Billerica, Mass. [CW, Sept 26].

- **Sun Microsystems Computer Corp.** will announce versions of its high-end SPARCserver 1000 and SPARCcenter 2000 SMP servers, due out in November. The new SPARCserver 1000E will start at $54,300; SPARCcenter 2000E will be priced from $659,400. Versions that support Oracle's 7.1 parallel server database for clustered servers will ship in the first quarter of next year.

- **Novell, Inc.** will announce a branding program designed to establish its UnixWare Unix operating system on a wide range of Intel Corp.-based systems. The UnixWare "Yes" program will initially have some 20 vendors announcing support. The firm's delayed UnixWare 2.0 SMP server software launch is now set for November, Novell said.

- **Tandem Computers, Inc.** is expected to introduce its High-Availability Transforming Software (HATS) for use with its Integrity line of Unix servers. HATS will start at $4,000 and will be available in November. Tandem will also add two low-end NR Integrity models, priced at $14,750 and $69,950, and a new fault-tolerant Integrity FT server for $149,500, company managers said.

— *Jean S. Bozman*

Oracle users ponder product overload

By Kim S. Nash
SAN FRANCISCO

Oracle Corp. may have stuck its foot in too many doors in an effort to crash the low-end database party of Microsoft Corp. and others, said several users and consultants at an annual meeting of the International Oracle Users Group held here last week.

Moreover, Oracle's desktop and workgroup database strategy is confusing, with product overlap in some areas and holes in others, they said.

Yet Oracle's new willingness to move products through resellers and other PC-style outlets is an encouraging sign that the vendor realizes it is not the only database game in town, observers added.

"It's great to see that Oracle wants to be everywhere from the low, low end to the high end, yet they have a lot of products at a lot of price points," said Tim Miller, director of MIS at Teltrust, Inc., a phone company in Salt Lake City.

Low tide

Aside from Oracle Workgroup Server and OracleWare bundles, Oracle also plans to put the Oracle 7 Release 7.1 database on several low-end operating systems

PLATFORM	AVAILABILITY
Windows 3.1	In beta
Windows NT 3.5	November
NetWare 4.0	October
PowerPC	Beta in November
OS/2	By end of 1994
Macintosh	Undecided

For example, Oracle plans to offer three editions of the Oracle 7 database on Novell, Inc.'s NetWare, all priced differently: OracleWare, Oracle Workgroup Server and an Oracle 7 NetWare Loadable Module. For Windows 3.1, Oracle plans to offer Personal Oracle, due by year's end, and Project X, due out in first-quarter 1995. "What are the differences between all those products? Seems to me I should just buy the cheapest one," said one meeting attendee.

Still missing are OS/2 and NetWare versions of Oracle Workgroup Server, due out several months ago. In fact, Oracle has "not done as well with Workgroup Server as we would like [because] it's only available on NT," noted Larry Ellison, president and chief executive officer.

Overall, Oracle is now learning the ropes of the PC world, said Tom Henderson, vice president of engineering at Unitel, Inc. of Indianapolis, an OracleWare distributor. Change comes quickly, he said. "God help you if you hoped to make revenues on a [Microsoft Windows 95] product in 1994, for example."

But Oracle is catching on. For instance, it plans to skip Windows 3.1 versions of some of its new development tools, jumping instead to Windows 95, said Nimish Mehta, vice president of Oracle's desktop products. Otherwise, "by the time we get the tools out, [Windows 95] will be out, and we'd be behind," he said.

But Oracle still faces the pain of change on the sales side. For example, OracleWare outlets, primarily Gold and Platinum NetWare resellers, reported a rocky start in working with Oracle.

Oracle's direct sales force "didn't want to work with us. It's changing now, but they wanted to sell all the products in the [OracleWare] bundle separately," said Mark Hilburger, a senior systems engineer at Service Technology Micro Systems, Inc., a reseller in Sterling, Va.

"The deal we did with Novell was a marketing execution fiasco," said Andre Boisvert, Oracle's senior vice president of worldwide marketing. "But I'm going to fix it." The fix includes compensating direct salespeople for any sale made in their territories. "That's new for Oracle ... and that's what they need to do business at the low end," Henderson said.

AT&T updates Teradata database. Page 77.

Seamless Integration...for Unattended Backup/Restore for PC/LAN to Mainframe

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News Shorts

Report suggests overseer for county IS

Unhappy users, an excessive application backlog and a lack of documentation standards led a civilian grand jury to judge the information systems practices of California's **county of San Mateo** in need of an overhaul, according to a six-month study released last week. The **Deloitte & Touche** study cited 30 action items, including development of a migration plan to open systems and appointment of a "change enabler" to oversee a complete systems revamp.

EDS, Moore make outsourcing swap

Electronic Data Systems Corp. and **Moore Corp.** will trade outsourcing skills in two 10-year contracts announced last week. The deals are valued at more than $1 billion. EDS picks up all Moore's IS functions while Moore's biggest unit, Business Forms and Systems, gets EDS' forms and commercial printing business. Company officials said the agreements are unrelated, but analysts quickly tagged them as the boldest instance yet of an outsourcer bartering services with a client.

AST drops subnotebook line

AST Research, Inc. killed its Ascentia 500N subnotebook before it even began shipping. The product, announced Aug. 15, was to ship last month. The company said in a statement that the slow growth of the subnotebook market and aggressive price-cutting by current players drove its decision.

Multimedia bundled into OS/2 V3

IBM said last week it will bundle more multimedia features into this month's release of OS/2, which is called V3. The features include support for **Eastman Kodak Co.**'s Photo CD, a variety of video overlay cards such as WIN/TV that turn PCs into televisions and support for the Motion Picture Experts Group standard.

Gupta provides objects for Oracle

Gupta Corp. last week unveiled an object library designed for **Oracle Corp.** databases. The product, which is due out early next year, is the first in a series of Quick Objects libraries planned for specific databases, Gupta said. Quick Objects for Oracle will be bundled with some versions of Gupta's SQL Windows development tool set. Pricing has not been set.

Layoffs set, loss seen at Bachman

Cash-strapped **Bachman Information Systems, Inc.** last week reduced its worldwide work force by roughly 20%, or up to 70 employees, in an effort to curtail expenses. The company will take a restructuring charge of $2 million during its quarter ended Sept. 30, for which Bachman also expects to announce significant losses, company officials said.

Novell rebuts acquisition rumors

Novell, Inc. last week said printed reports that it plans to buy workflow vendor **Reach Software Corp.** are incorrect. Novell does plan to get into that market and may license Reach's technology or form a partnership, but it will not acquire the company, a spokesman said. Reach officials would not comment.

Cheyenne quarter falls short

Cheyenne Software, Inc.'s first-quarter 1995, ended Sept. 30, will be below analyst expectations of 14 cents per share. The company instead anticipates earnings of 8 to 11 cents per share and sales in the $20 million to $22 million range, before a onetime net gain of approximately 25 cents per share. Last year, Cheyenne reported first-quarter sales of $20 million and earnings of 18 cents per share.

Object standard conflict rises . . .

By Melinda-Carol Ballou

The fight is on between opposing vendor camps over which will set the standard for interoperability among emerging object systems.

Rather than agree to an expected compromise, some Object Management Group (OMG) members are split over which communications pathway will support interoperability among object systems that comply with the group's Common Object Request Broker Architecture (CORBA).

One group of OMG members — including Hewlett-Packard Co. and Digital Equipment Corp. — is pushing for the Open Software Foundation's Distributed Computing Environment (DCE) as the basis for a wire protocol on which to send remote procedure call (RPC) interoperable object messages.

In the other camp is Sun Microsystems, Inc., Expersoft Corp., Bell Northern Research and others, all rooting for a standard TCP/IP-based wire protocol for sending object messages.

And in a twist of strategy, IBM has placed itself in *both* camps, playing the middle ground so it "won't lose either way," one industry source said.

HP and Digital this week will release into the public domain their version of the DCE RPC technology. Developers will have easy, free access to the RPC, via the Internet, on gateway machines at both HP and Digital.

The vendor stakes are high: DCE is key to the corporate strategies of HP, Digital and IBM. HP and Digital, in particular, have optimized their CORBA systems for DCE.

Industry observers said HP and Digital put their RPC into the public domain to bolster their chances for OMG adoption of that technology.

Because the DCE RPC and TCP/IP technologies exist at disparate levels of the network — and address the problem differently — a compromise proposal requiring both protocols would create costly and unacceptable performance hits and other problems, OMG officials said.

Fine tuning

Once an interoperability standard is chosen, changes will be incoporated into the CORBA specification so that CORBA Interface Definition Language will map correctly to the chosen wire protocol, which will act as a kind of highway for messaging among CORBA systems.

Interoperability a must

CORBA is an emerging specification for managing distributed objects. CORBA 2, which OMG members will vote on later this month, will set a standard for allowing different implementations of the specification to interoperate.

Interoperability among CORBA implementations concerns software developers and, ultimately, end users because if CORBA 2 fails, the momentum behind the vendor-neutral CORBA specification could fracture on the rocks of incompatibility, analysts said. The result could be an increasingly chaotic object arena.

Sources close to the process said that the TCP/IP option may offer better performance and more flexibility through bridges to multiple environments, including DCE. Those factors may prove decisive as the OMG seeks the technical option that best meets user and technical requirements.

. . . as compatibility issue gets an 'Edge'

By Melinda-Carol Ballou

As the software world increasingly embraces object development techniques and operating systems, a critical need is emerging to bridge the various systems based on disparate object models from Microsoft Corp. and the Object Management Group (OMG).

New technology shipping this week from Visual Edge Software Ltd. in Montreal seeks to close the gap among incompatible object systems.

At Mobil Oil Corp., for instance, certain technical groups plan to use implementations of the OMG's Common Object Request Broker Architecture (CORBA) running on Unix workstations. Groups on the company's business side, however, are counting on using Microsoft's Object Linking and Embedding (OLE) and its object model, according to Don Reukema, computing systems adviser at Mobil's Exploration and Producing Technical Center in Dallas. Communications across those environments will thus be vital, he added.

Developers are also moving toward component-based development. They want to be able to mix and match the best components but cannot do so if those components are implemented using different object systems.

What Visual Edge offers with its Object Bridge product is the ability to bridge major CORBA-compliant implementations and OLE's Common Object Model, company officials said.

Top dog?

While it is not the only company targeting this arena — others include Iona Technologies Ltd. and Digital Equipment Corp. — analysts said Visual Edge's solution appears to be more comprehensive. It targets a greater range of object systems and may perform better because of its efficient design, they said.

This kind of technology could potentially level the playing field with Microsoft by breaking the proprietary grasp of Microsoft's OLE via Object Bridge's interoperability across object systems, analysts said.

In addition to Object Bridge, Visual Edge is shipping its Software Development Kit, a C++ class library for developers who wish to bundle the capabilities of Object Bridge into their applications.

"From a systems integration point of view, [Bridge] offers middleware to allow the interaction of dispersed and very different environments," said Bob Garron, a vice president at Smith Barney Shearson, Inc. in New York who has been briefed on the product.

He added that Object Bridge demonstrates the power of objects by allowing developers to reuse objects as well as use other vendors' components "without ever learning the details of those object systems."

Bellwether potential

"What they are promising with this technology has the potential to lead to real acceptance of object technology," said Judith Hurwitz, president of Hurwitz Consulting, Inc., a Watertown, Mass., consulting firm. "It could let you buy components from the best experts and plug and play them together to create complex applications without having to do enormous amounts of work."

Users of Object Bridge can create objects for disparate systems as if they were targeting their current object environments. Object Bridge also offers a stand-alone Dynamic Link Library, which developers can retrofit onto existing applications. Using it, developers can find and create objects in other object systems.

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Infrared to boost wireless market

By Michael Fitzgerald

Wireless communications will take a big step toward becoming a standard feature in PCs and printers this fall, according to sources who said IBM and Hewlett-Packard Co. will lead a host of vendors to market with products that incorporate the Infrared Data Association's (Irda) serial infrared standard.

The Irda, which finalized its standard on June 30, is also considering proposals to incorporate a faster data-transfer standard, according to John LaRoche, executive director.

Serial infrared is similar to the technology that lets couch potatoes change TV channels without getting up. It offers computer users a way to transfer data between systems without using cables. It does not act as a wireless LAN connection.

Serial infrared was expected to be standard in PCs by now [CW, May 10, 1993], but a longer-than-expected standard adoption delayed its acceptance.

Several product announcements should now speed the adoption of infrared, according to industry sources. The announcements include the following:

- On Oct. 17, IBM will introduce ThinkPad 755 notebooks with built-in Irda infrared [CW, Sept. 19]. IBM will also put infrared in its next-generation subnotebook, code-named Butterfly, which may be introduced as early as next month.
- On Nov. 14, HP will demonstrate a LaserJet printer running one of the proposed next-generation Irda standards, a 1M bit/sec. connection, as part of a Comdex/Fall '94 "beamfest" that will include products with built-in infrared from some two dozen vendors.

IBM and Sharp Corp. have also proposed speedier infrared technology to the Irda. In November, Lexmark International, Inc. will announce printers with the built-in Irda standard, sources said.

A few products already include infrared: HP offers it in its OmniBook subnotebook and 200LX pocket organizer and as an option for its desktops. Sony Corp. said it may add Irda standard support to its new Magic Link personal digital assistant as well (see page 20).

Necessary element

Meanwhile, HP sources said the technology demonstration is a precursor to an announcement next year of standard infrared in the LaserJet family. Analysts said the HP announcement is key to the acceptance of infrared communications.

"That's what the market needs for it to explode, the [infrared] window in the front of the LaserJet," said Martin Reynolds, an analyst at Computer Intelligence/InfoCorp in Santa Clara, Calif.

On the notebook side, the influx of infrared means life will become easier because users will be able to print files simply by making an infrared connection to a printer. It could also make data transfer easier if desktop vendors install infrared. That addition adds approximately $4 to $5 to the cost of building a PC; it could go as low as $1.

Analysts expect infrared to become a standard because of its low cost and its potential for easier communications. Today's 115K bit/sec. infrared standard is significantly faster than the 28.8K bit/sec. rate of the fastest modems on the market but much slower than Ethernet connections. The Irda is in the process of considering several proposals, including 1M bit/sec. and 4M bit/sec. speeds, according to LaRoche.

"1M [bit/sec.] would be great. That would be getting there," said Joseph Awe, director of strategic technologies at PECO Energy Co. in Philadelphia.

LaRoche said infrared will be a key component of the Plug and Play initiative, with support built into Windows 95, the next version of Microsoft Corp.'s Windows operating environment, and support from Novell, Inc. as well.

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DEC rehabs licensing plan

By Mary Brandel

■Customers have been hoping Digital Equipment Corp. would talk software soon, and last week it did. However, the company was not ready to release details on its much-awaited software strategy, promising to do so later this fall.

As expected, Digital touched up three products and collapsed its licensing strategy from 28 to three tiers, with the intent to lower upgrade costs and reduce administrative work [CW, Sept. 26].

While not earth-shattering, the software enhancements at least cast some light on Digital's strategy, according to some observers. Ever since Digital promised to sell anything deemed nonstrategic, much doubt has surrounded which parts of its portfolio the company will keep.

The software announcements "are a good sign," said Richard Buchanan, an analyst at Forrester Research, Inc. They show Digital fitting major players into its environment rather than trying to provide alternatives — a more realistic model, he said.

In addition, the three products — Pathworks, Accessworks and Linkworks — have some synergy when seen as a group, said Bob Sakakeeney, an analyst at Aberdeen Group in Boston. "Picture a PC linked into a network with Pathworks on it, working on a project with another group that requires them to tap into several databases. If Digital shows how they can be sold together, they'll have a good story," he said.

Specifically, Digital announced the following:

- A three-tiered licensing strategy, effective Oct. 10, will eliminate software charges when users upgrade hardware within a tier. Tiers are enterprise, departmental and workgroup. For cross-tier upgrades, users will receive a 75% credit based on the price of the license being traded, up to 75% of the new license. This includes VAX-to-Alpha and OpenVMS-to-OSF/1 migrations.

Savings are expected to range to 60% (see chart). Software prices, which were revamped, will not decrease across the board, Digital said. New prices will be based on competitive Unix platforms.

- Linkworks, a groupware product, will be bundled with Computer Associates International, Inc.'s CA-Ingres or Oracle Corp.'s Oracle 7 for $499 per user, a 44% savings over purchasing the components separately. Also, Sybase, Inc. has signed a letter of intent to package System 10 with Linkworks.
- Three new gateways for Accessworks, a database integration tool, will increase viewable databases from nine to 66.
- New functions for Pathworks, a network operating system integration product, will include a bundled Mosaic interface for Internet access.

Wait and see

One analyst was skeptical that the enhancements guarantee the products' strategic importance to Digital.

"I would take advantage of [the software], but ... I would also mate those with something like Lotus' Notes to ensure I had a platform I could shift to rapidly," said Chris Christiansen, an analyst at International Data Corp.

On the surface, the new licensing appealed to users. But they said they wanted to read the fine print before deciding whether it will cut software costs.

And complexities remain. Before trading up, customers must show proof of their current licenses, said Dennis Spillane, president of Software Management Associates in Norwood, Mass. Customers have often lost track of those records. And without careful evaluation, "customers might tend to overtrade licenses and lose the value of what they've got," Spillane said.

"Until you compare the numbers, you don't know the ultimate bottom-line effect," said Steve Hankins, vice president of information systems at Tyson Foods in Springdale, Ark. He agreed that software purchasing may become easier, but he wondered how the system would be administered.

Earlier this year, Tyson spent six months performing a license audit. "Software has a tendency to grow," he said. "I can see having the same mess as before."

Tier savings

Software is free when users upgrade within one of three new tiers. Digital will issue a 75% credit when users trade to a higher tier.

UPGRADE	PRICE		SAVINGS
	OLD	NEW	
VAX 7610 to VAX 7620	$59,062	FREE	100%
VAX 4000-500A to Alpha 3800*	$21,419	$12,222	43%
VAX 4000-100 to DEC 10000-620**	$104,656	$38,724	63%

*Departmental VAX to departmental Alpha **Workgroup VAX to enterprise Alpha

It's official

Digital has formed a software business group that was not included in its July reorganization. It falls within the Systems business unit, headed by Enrico Pesatori. Its three divisions are Alpha products, including Unix, NT, low-end servers and workstations; OpenVMS; and software products, including third-party relationships, layered software and middleware. Bill Demmer is vice president of the group.

Intel eyes video on the LAN

By Jaikumar Vijayan

Turning the desktop PC into a personal conferencing station could soon become just a matter of plugging in a couple of cards.

Intel Corp. is beta-testing a videoconferencing product that will let networked users pull real-time video and audio feeds into their PCs, according to sources close to the company.

At an industry conference on Plug and Play technologies in New York last week, several desktop vendors demonstrated beta versions of Intel's next-generation ProShare videoconferencing hardware and software.

Intel refused to give details on the as-yet-unannounced product, though analysts who saw it said it will use compression algorithms to move packets of data, video and audio over standard 10Base-T Ethernet lines for now and over 100Base-T technology when that becomes available mid- to late next year.

ProShare — plus

According to an Intel spokeswoman, the product extends the capabilities of Intel's ProShare to include both Integrated Services Digital Network (ISDN) and standard Ethernet as its main transport channels. It will consist of a video capture card, an ISDN/Ethernet connector and software for document sharing.

Analysts said the product will be among the first multipoint, network-spanning, PC-based videoconferencing products that allow full-motion videos to be transmitted and received over standard LANs.

"The product is positioned as a vertical, organizationally focused product appropriate in a large corporate environment," said Dean McCarron, an analyst at Mercury Research in Scottsdale, Ariz. He cited large-scale, campus-wide message dissemination with video and audio as one possible application.

However, because the video is sent over the network as compressed packets on the relatively narrow bandwidth of 10Base-T lines, the images are likely to be distorted, he said.

"It gives users the ability to get compressed video feed anywhere in the LAN, from any number of nodes," said Eric Lewis, an analyst at International Data Corp. Technology demonstrations at the conference used feeds from a video camera, but that technology could be used to transmit and capture television images at desktops in the LAN, analysts said.

Because the feed goes over a standard LAN and can be captured by multiple nodes on the network, the technology could find immediate appeal in certain specialized niches. For example, financial or news organizations could benefit from real-time information on individual PCs, Lewis said.

At least one user said desktop videoconferencing is a convenience that does not fully justify the associated costs, despite its potential.

"Very few people want to be the first to try out something like this. The feeling here is we don't need something like this until the costs come down enough," said Michael Parrott, senior LAN/WAN administrator at Restaraunt Services, Inc. in Miami.

Multimedia to run on chip

By Suruchi Mohan

Later this month, Intel Corp. and Spectron Microsystems, Inc. will announce software that will support native signal processing on a Pentium chip, allowing multimedia software to run on the processor instead of requiring dedicated hardware.

For users interested in acquiring multimedia capabilities on their desktops, the Pentium's ability to do native signal processing will mean cost savings in audio/video hardware. The software will also provide greater access to more multimedia applications via a common interface across different platforms, said Will Strauss, president of Forward Concepts Co., a marketing research company in Tempe, Ariz.

Native signal processing is a generic term to describe Pentium's ability to handle real-time data without additional hardware.

Strauss said he expects a number of third-party developers to write to the specification so that multimedia applications can handle voice mail, fax and music. The advantage of having a common interface is that users will be able to run multimedia applications on Pentium processors, regardless of their operating system.

So far, users have had to install audio or video cards on their PCs to handle multimedia complexities such as compression. These cards have typically been a collection of digital signal processors (DSP). CPUs have just not been fast enough to handle DSP algorithms. The Pentium processor, though not fast enough to handle Joint Photographic Experts Group- and Motion Pictures Expert Group-type compression, will be able to compress and manipulate audio signals. This means that recorded speech can be slowed down or sped up, Strauss explained.

The initial release will support audio only; video and communication will be supported later.

Intel and Spectron will provide these DSP-like qualities to Pentium processors through native signal processing, said Dave Schuler, a marketing manager at Intel Architecture Labs in Hillsboro, Ore.

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IBM tools to support Oracle, Sybase

By Craig Stedman

■ Raising the stakes in its effort to become a serious player in the client/server database market, IBM plans this week to detail new administration and querying tools that will support Oracle Corp. and Sybase, Inc. databases in addition to its own DB2 products.

Leading the product rollout will be a Unix version of IBM's DataHub software for administering multiple databases from a single point. DataHub is an OS/2-based product that supports the various DB2 platforms, but IBM officials said the Unix release will handle Oracle and Sybase plus DB2/6000, the DB2 product geared to IBM's Unix-based RS/6000 workstation and server line.

This embrace of outside databases was described by DB2 users and industry analysts as a necessary recognition by IBM of marketplace realities. But they also hailed it as a bold move — as yet unmatched by other vendors — that could indeed help give IBM's database image a much-needed shot in the arm.

Changes may be too late

"It's great that IBM is finally realizing that there's something else out there," said Walter Turyn, principal client/server consultant at Glaxo, Inc. in Research Triangle Park, N.C. "This may be the way DB2 can finally come back into the mainstream. It really got shunted aside from people's minds when they started going to open systems before IBM was ready" with DB2/6000.

Turyn, who is also a former president of the International DB2 Users Group, said IBM may be reacting too late to change the minds of customers who already committed to other databases and tools. But a common administration capability would be cheaper and less complicated than the current "stovepipe approach" of managing each database with its own tools, Turyn said.

Marco Chou, a DB2 systems consultant at Allstate Insurance Co. in Northbrook, Ill., said his firm plans to bring in both the OS/2 and the Unix versions of DataHub for evaluation. "We've been looking for something to help us manage different databases" in a centralized way, he said.

Allstate has multiple flavors of DB2 in addition to Oracle and Sybase installations, Chou said. "Applications sometimes run only on a single database manager, so we don't have the luxury to just choose one" database as a standard, he said. But administering them separately is proving to be "a difficult process."

Taking it one step further

With DataHub, IBM "is going beyond what the other [vendors] are trying to do" with administration tools, said Judy Davis, an analyst at Patricia Seybold Group in Boston. "I don't see Sybase talking about managing an Oracle database."

IBM will not be able to match the optimization that Oracle and Sybase can put into their own tools, said Shaku Atre, president of Atre Associates, Inc. in Port Chester, N.Y. "But as long as [DataHub] works OK, people will be interested in it if they have multiple databases," Atre said.

In addition to DataHub Version 1.0 for Unix, IBM is introducing Version 2.0 of the DB2-only DataHub based on OS/2 (see chart). Jeff Jones, a database tools brand manager at IBM, said the two implementations will be merged into a single product in the next release, which is expected to be ready sometime next year.

The Unix DataHub will run on RS/6000 systems and hardware from both Hewlett-Packard Co. and Sun Microsystems, Inc., Jones said. It is the functional equivalent of the OS/2-based version, although the Unix product supports TCP/IP networking while the original DataHub uses IBM's SNA transport.

Another new product with Oracle and Sybase support will be DataJoiner, a piece of middleware that can pluck data from multiple distributed databases in response to a single SQL query. Queries are written to local tables that "mask the remoteness of the data" being accessed to the user, Jones said.

IBM is also expanding the number of DB2 platforms supported by its DataPropagator Relational replication tool. A performance monitor and a visual tool for checking and optimizing access paths to data will also be added for DB2/6000 and DB2/2.

Tooling around

IBM's new database tools will not become generally available until next year

PRODUCT	START OF BETA TESTING
DataHub:	
Version 1.0 for Unix	December 1994
Version 2.0 for OS/2	December 1994
DataJoiner	Early 1995
DataPropagator Relational:	
•DB2 for HP/UX target module	December 1994
•DB2/6000 data capture module	February 1995
•DB2/2 data capture module	April 1995
DB2 Visual Explain	
•DB2/6000	December 1994
•DB2/2	April 1995
DB2 Performance Monitor	
•DB2/6000	December 1994

Users check options despite continued Teradata upgrades and releases. See page 77.

Notebooks may replace desktop systems

Technology advances are sparking user interest

By Michael Fitzgerald

In the future, that PC on your desk may be a notebook.

Advances in notebook technology appear to be accelerating a corporate trend toward having one notebook PC, instead of a desktop and a notebook.

Analysts said recent announcements such as NEC Technologies, Inc.'s Versa M, which comes in both a 24-bit true-color screen and an 800- by 600-pixel resolution version, will drive the desktop replacement market forward. Another booster will be the release of Intel Corp. Pentium notebooks Oct. 10, when Toshiba America Information Systems, Inc. introduces the T4900 notebook [CW, Sept. 19], according to sources close to the company. Intel will announce its 50/75-MHz "portable" Pentium chip the same day, a week earlier than expected, the sources said.

The idea of replacing desktops with notebooks is one that some vendors have been pushing since notebooks began to match their deskbound cousins in power and storage capacity. However, many users have been slow to move away from the cheaper, more expandable desktop systems. Users said they would like to see several developments before they abandon the desktop. These include the following:

- Lower overall costs.
- Higher resolution on larger screens.
- Faster performance.
- Better usability.

"We're looking at giving users [portables as] desktop replacements," said Abraham Chait, team leader at Pacific Gas & Electric Co. in San Francisco. He said 800- by 600-pixel screens are exciting because they will allow notebook users to run multiple windows, which they cannot do now. He added that Windows 95, the next version of Windows, with plug-and-play support, will make it easier for users to pull notebooks in a desktop environment.

Trend is in the fast lane

"It's an important corporate phenomenon," said Bruce Stephen, an analyst at International Data Corp. in Framingham, Mass. While he does not expect to see a wholesale move from desktop systems to notebooks, he does expect the trend to accelerate, particularly in accounts serving highly mobile users.

Duane Rochelle, an information technology engineer at Entergy Services, Inc. in Gretna, La., the information systems arm of Entergy Corp., said that as notebooks match desktops for performance, users at his company have begun to make the move.

"At one time, we might have had one [notebook] per group. Now in some groups, half the group might have their own notebook" in place of a desktop, he said. Rochelle cautioned that this was primarily for users who travel frequently.

He added that he would welcome Pentium notebooks and particularly notebooks with higher-resolution screens. "Our users get used to running applications under Windows, and you get spoiled with high-resolution desktop systems," Rochelle explained.

Analysts said they expect 800- by 600-pixel color displays to become a new standard for notebook computers next year, though NEC will be alone in the market for some time.

Bigger screens on notebooks may also help. Joseph Formichelli, general manager of the IBM PC Co. ThinkPad product line, said in a recent interview that IBM, which has the industry's largest (10.4-in.) screen on its high-end models, will bump up the size on its next-generation portables.

"Who said 10.4 inches is the biggest thing I can put in a notebook? Why do I need all that black plastic?" Formichelli asked. Sources close to the company said IBM is readying a subnotebook with a 10.4-in. active-matrix color display and a notebook with an 11½-in. active-matrix color display.

Slowly working up speed

Still, many analysts foresee a slow ramp-up for the desktop replacement market.

"It's probably a year or two away," said Mike McGuire, an analyst at market researcher Dataquest, Inc. in San Jose, Calif. While new features such as high-resolution screens will accelerate the market, the appearance of specialized PCMCIA cards will be a final piece in the puzzle.

Time should also drive price decreases, which would end the main stumbling block for users considering replacing desktops with notebooks.

Supporting figures

A 1993 Computer Intelligence/InfoCorp report showed steady growth for notebooks replacing desktops. The market is expected to grow from 15% last year to 30% next year.

Banyan targets network apps

By Lynda Radosevich

Banyan Systems, Inc. last week previewed upcoming products and made several partnership announcements designed to speed up its move into the strategic networking applications arena.

The announcements, made at the Association of Banyan Users International (ABUI) fall conference, centered on Banyan's plans for five key networking services on Banyan's Vines and other network operating systems such as Novell, Inc.'s NetWare. The network operating system-independent services are messaging, directory, security, network management and systems administration.

The services are meant to provide very large network sites with building blocks to create workflow and other line-of-business applications as well as provide the manageability and scalability that is widely agreed to be lacking in most LAN products today.

ABUI President Ted Kull: *Banyan's plans 'right on the money'*

Users at the conference said the relationships and promised products address several of their needs.

"I think they're right on the money with their strategy," said Ted Kull, project manager at the Educational Testing Service in Princeton, N.J., and ABUI president.

"Banyan is proving concepts such as network workflow that others are just talking about," said Bill Kotopoulos, supervisor of technical support service at Com/Energy Service Co. in Cambridge, Mass.

Although users interviewed at the show and surveyed last week said Banyan needs to come up with a fair alternative to its abandoned unlimited server license option, there were no new developments on that front. As it has previously stated, Banyan will announce an "enterprise" pricing model next year.

Show highlights

The show events included the following:

- A demonstration that Vines is tightly integrated with Windows 95, the upcoming version of Windows.
- A Banyan implementation of Hewlett-Packard Co.'s OpenView network management system, due out late this year as part of Banyan's Distributed Enterprise Management Architecture.
- An agreement with Digital Communications Associates, Inc. to provide a wide range of IBM mainframe and AS/400 connectivity products to work with Banyan services, beginning with an AS/400 product that is available now.
- An agreement with Collabra Software, Inc. to ship a version of Collabra's group discussion software for Banyan's Intelligent Messaging service and BeyondMail client software by the end of the year.
- Previews of Enterprise Backup and Restore, a backup product scheduled for an early 1995 delivery that sprung from a partnership with Legato Systems, Inc.
- Previews of Enterprise Data Distribution, a service due out early next year that is meant to automate the movement of data elements such as reports and files in a network.

Users also said Banyan needs to improve its national and international support. To address those concerns, Banyan said it is beefing up support in Europe, Asia and South America. It also announced the formation of Banyan Certified Support Centers, a program to help users identify Banyan-certified support partners.

ABUI users said they are concerned about Unix integration with Vines. To address this, Banyan is separating the Vines kernel from its services to ease access to Unix-based applications such as Oracle Corp.'s namesake database using native Vines, sources said.

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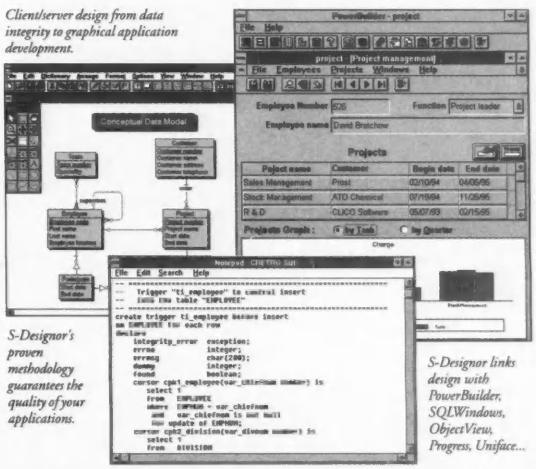

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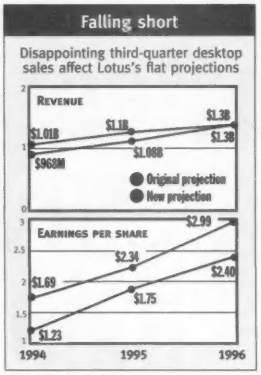
Slow desktop sales hint at lower Lotus revenue

By William Brandel

As Lotus Development Corp. officials began closing the books on the company's fiscal third quarter, ended last week, Wall Street analysts started slashing estimates.

While still rating the stock a Buy, several analysts attributed the lowered expectations to the fact that Lotus — for three quarters running — appears to be pulling in significantly less revenue than expected from its desktop products. They also pointed to a very weak performance in European sales, a dramatic drop in the company's DOS applications business and a buildup of inventory in the European channel as additional signs that all is not well with Lotus' desktop business.



Tenuous position

The news is disappointing for investors, analysts said, but it has more ominous undertones for Lotus' position in the desktop applications market, from which two-thirds of its revenue is derived. When warning analysts previous to the last quarter that revenue for that period would fall short of expectations, Lotus officials projected that the company would regain some of the footing it has lost to Microsoft Corp.'s hot-selling Office applications suite. However, it appears that Lotus' rollout of SmartSuite 3.0 has not impeded Microsoft's Office momentum, analysts said.

"Lotus has underestimated Microsoft's ability to pick up market share with its Office suite," said Paul Johnson, an analyst at Robertson, Stephens & Co. Last Monday, he cut his third-quarter revenue expectations from $246 million to $232 million and cut the profit gain in half, from 35 cents to 18 cents per share.

The next day, Montgomery Securities lowered its third-quarter projections after meeting with Lotus officials who said desktop sales had suffered from disappointing demand and weakness in the European economy. Consequently, Montgomery too has cut its earnings estimates in half for the third quarter, down from 33 cents to 17 cents per share.

"The problem in their desktop business is worse than we thought," said Peter Rodgers, an analyst at Bear, Stearns & Co., a Wall Street investment house.

1-2-3 upgrades low

In addition to the reasons cited by Lotus, upgrade sales this quarter for 1-2-3 Version 5.0 have been particularly disappointing, Rodgers said. As a result, "the March quarter was disappointing, the June quarter was a disaster, and now the September quarter is again coming in light," he said.

According to analysts, sales of Lotus desktop products that shipped this quarter, including SmartSuite 3.0, 1-2-3 for Windows 5.0 and Approach 3.0, are all disappointing. Ironically, it was the delay in shipping these products that Lotus officials cited as the cause for disappointing earnings in its second quarter.

A Lotus spokesman confirmed that the company has experienced a "softness" in the European market but that the company has not determined whether it is a short- or long-term trend. He had no comment on the financial reports.

Notes Express may derail developers

CONTINUED FROM PAGE 1

solutions in the Notes development environment are unable to take advantage of Notes Express," said Steve Hochschild, a director in the Interenterprise Communications Group at Lotus and former director of the Notes professional developer's program. "And we're in discussions with that group to figure how to be more responsive to their needs."

Jeff Papows, vice president of Lotus' communications business group, added, "We are aware that there is a mixed reaction, but we are not currently contemplating any change in policy, and we will continue to listen."

One Notes development partner summed up the issue this way: "It's frustrating because if Lotus is successful and gets another million Notes users [with Express], there's a million people who think they have Notes. But in fact, [they] can't run our software without upgrading to the expensive version [of Notes]. That raises that cost barrier for us and for customers."

Notes developer Gary Cole, president of Marin Research Group in Mill Valley, Calif., added, "We're really happy to see the Notes environment expand. However, it would have been nice if [Notes Express] could use existing applications more gracefully."

Still, there are developers who are enthusiastic about Notes Express, Hochschild said.

"The developers who love Notes Express are those using other development tools such as PowerBuilder, Visual Basic, Notes VIP and Revelation," he explained.

Express is the Cambridge, Mass.-based vendor's first attempt to price Notes as a client separate from the server. Notes is now sold in a $495 package from which the client license is not separated. Last week's deal with Oracle Corp. [see story page 4], the purchase of Edge Research, Inc. and the introduction of the Notes Express client are all steps to move Notes toward client/server pricing, Lotus sources said.

Meanwhile, Notes developers are confused and concerned. They have long requested a cheaper version of Notes that lets users access predeveloped Notes applications such as customer call-tracking programs but does not give them the development capabilities they get in full-fledged Notes.

"We've been asking Lotus for a runtime version of Notes so we could get Notes into companies that can't afford it now," said Dale Reynolds, president of WorkFlow Technology, Inc. in Austin, Texas. "It could still happen, but I don't know."

Ironically, the only option left to those developers is rewriting their applications using Notes VIP or Visual Basic. This will only make it easier to port those applications to the Microsoft Exchange messaging server when it ships next year, according to several sources.

Taking Notes

Lotus last week announced that Notes for Windows NT is shipping. Also, Lotus will announce this week at Unix Expo that several belated versions of Notes for Unix will ship by the end of the month, including Notes for IBM's AIX, Hewlett-Packard Co.'s HP/UX and The Santa Cruz Operation's SCO Unix. Notes' scalability and performance are expected to improve in those versions.

CIOs move up

More land top mgt. positions

By Julia King

CIO does not have to mean "career is over," as several top information systems executives have demonstrated in recent weeks.

Susan Cramm, former chief information officer at Pepsico, Inc.'s Taco Bell division, is now chief financial officer at the company's Chevys Restaurants unit.

At The Home Depot, Inc. in Atlanta, Andy McKenna has been named president of the retail giant's Midwest division. He joined the company in 1990 as vice president of IS.

Meanwhile, Bill Zuendt, a vice chairman and longtime technology guru at Wells Fargo Co., is scheduled to take over as president on Jan. 1.

"If there's any trend at all here, it's that the CIO [position] is not like a trapdoor where you can only go out," Cramm said last week. "You can go somewhere else" in the company.

That is quite a change from a year ago when recruiters pegged the average tenure for CIOs at 18 to 24 months — slightly longer than the shelf life of a breakfast cereal.

"Now I see the CIO position all of a sudden being a launching pad for more general management," said James McClure, a vice president at the executive recruiting firm Korn/Ferry International in Boston. "In their specifications some companies say that the CIO should be a potential successor to the CEO."

Up the ladder

In 1992, a Deloitte & Touche survey found that one-third of all CIOs left involuntarily and that companies tended to hire their successors from outside. Less than two years later, a new study by Ernst & Young indicates that CIOs have a better shot at a CEO or COO post than their nontechnical counterparts.

Transaction-intensive firms, such as banks and retailers, seem to be the frontrunners in promoting IS managers to executive posts. A year ago this month, Wal-Mart Stores, Inc. was one of the earliest, naming former CIO Bobby Martin as president and chief executive officer of Wal-Mart International. Similarly, before becoming Citicorp chairman in 1984, John S. Reed oversaw the bank's automation efforts as head of operations.

"Much of what banking is today is acting as an intermediary between information on a network," said Zuendt, who oversaw the bank's early push into automated teller machine networks and phone banking in the 1980s.

As companies in all industries become more transaction- and technology-intensive, "I think we'll see the career-is-over [syndrome] increasingly change," Zuendt added.

In McKenna's case at Home Depot, President Arthur M. Blank said it was the former IS executive's "development and implementation of more than 90% of current store operations and merchandising systems" that made him ideal to head the retailer's Midwest division.

Recruiters said the boundaries between some technical and business positions are disappearing. "CIO experience is becoming more valuable for the transition to CEO and COO," said Tom Friel, a managing partner at Heidrick & Struggles, Inc. "The flip side is, more non-IS executives are becoming CIOs."

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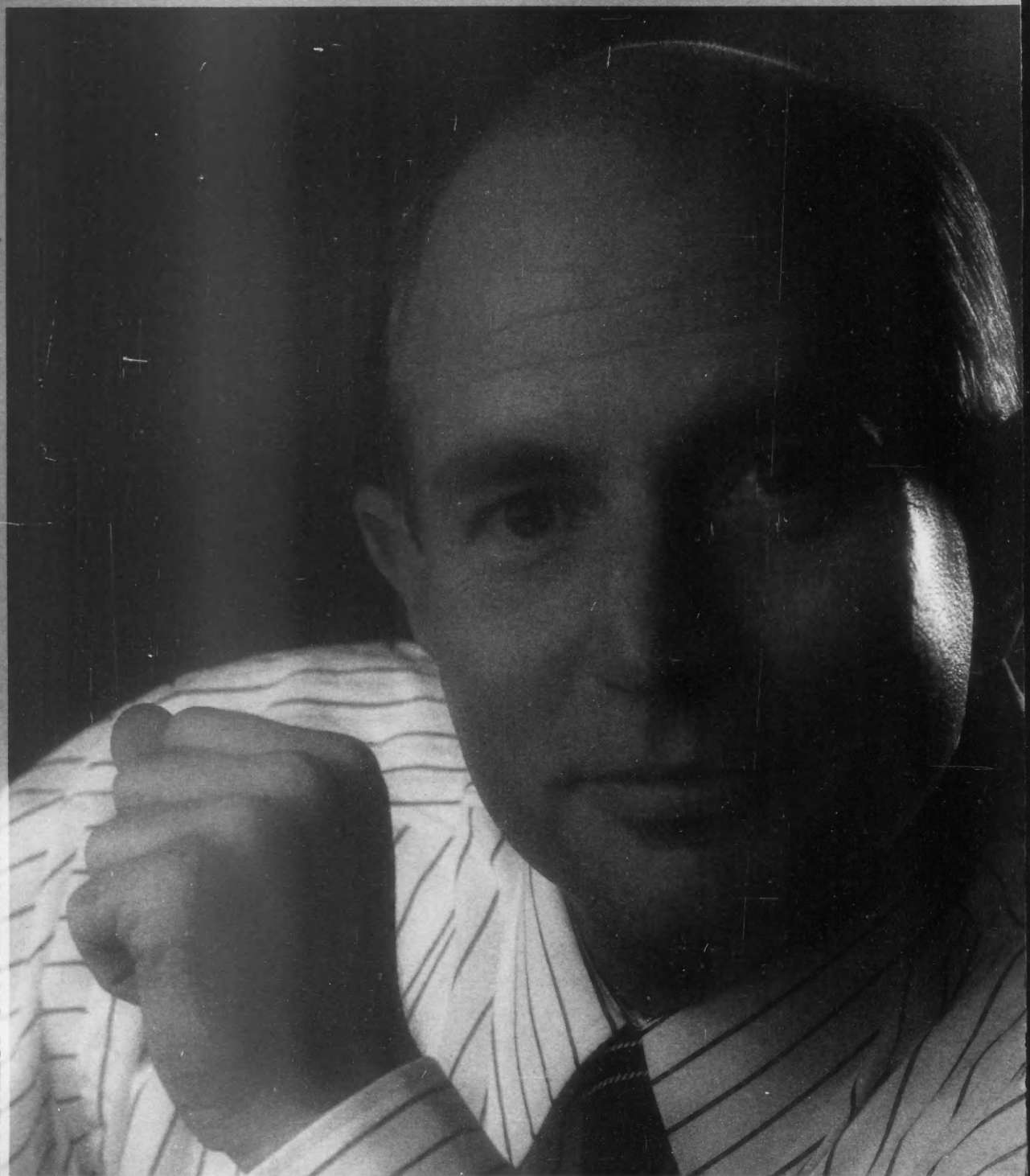

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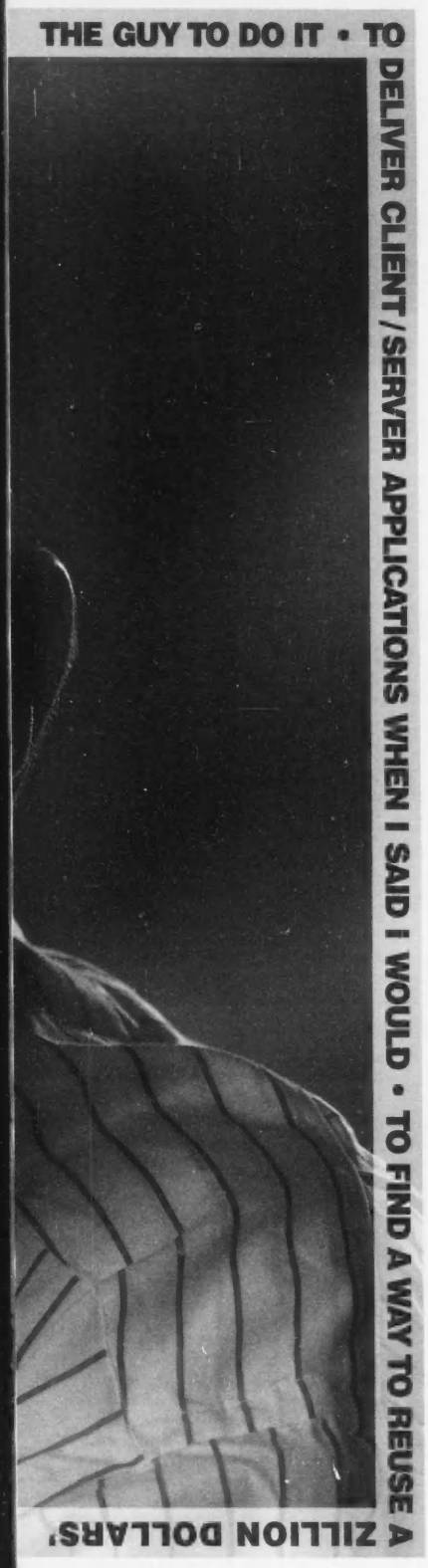

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Usable Magic Link won't boost PDAs

By Michael Fitzgerald
NEW YORK

The first personal digital assistant you do not have to be like Dilbert to use hit the market last week when Sony Corp., AT&T Corp. and General Magic, Inc. introduced Magic Link.

Executives at the companies stressed that they did not expect huge sales for Magic Link, despite its usability.

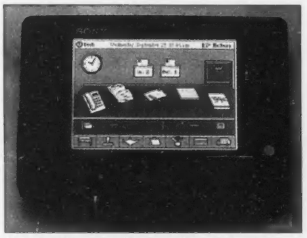
"These will not develop into a megamarket overnight," said Carl J. Yankowski, president and chief operating officer at Sony Electronics, Inc. in Park Ridge, N.J. He said new technologies can take 10 to 15 years to gain broad market acceptance, citing color televisions and CD-ROMs. Sony is planning accordingly for the personal digital assistant (PDA) market.

In other words, do not expect Magic Link to work magic in the moribund personal intelligent communicator/PDA market. At best, the market will perhaps inch forward with the 1.2-pound Magic Link, whose debut will feature General Magic's Magic CAP operating system and Telescript communications protocol and AT&T's PersonaLink on-line service [CW, Sept. 12].

With built-in infrared communications, a single PCMCIA Type II slot and 1M byte of RAM, the device costs $995. But communications modules and other devices will bump the useful price up to about $1,500, analysts expect.

"This is the first PDA I don't have to be like Dilbert to use," said Dick Shaffer, president of Technologic Partners in New York, referring to the nerdy engineer comic strip character. "This is the beginning, as far as personal communicators are concerned."

Magic Link drew a smattering of industry support. SkyTel Corp. is offering a Magic Link Pager Card for wireless messaging and paging, and Intuit, Inc.'s



You don't have to be a nerdy *comic character like Dilbert to use Magic Link*

Pocket Quicken and PenWare Corp.'s PenCell spreadsheet are among the bundled software packages. Also, America Online, Inc., CompuServe, Inc., IntelliLink Corp. and Aha Software Corp. are tailoring their applications for Magic CAP.

Magic Link is not the only product primed to advance in the PDA market in coming months.

- Integral Peripherals, Inc. will announce today that it is shipping a 260M-byte version of its 1.8-in. PCMCIA Type III Viper hard drive. The firm also said it will begin shipping a 340M-byte version of Viper in first-quarter 1995 as well as a 420M-byte drive that is the first in a new family of 1.8-in. drives called Cobalt.
- Geoworks, Inc. will release later this month Version 2.1 of its Geos operating system for PDAs, according to a company official (see story page 44).

The high capacity of the Integral Peripherals drives may make PDAs more functional, though the drives will initially cost more than twice as much as comparable 2½-in. drives used in notebooks.

Better performance

The new version of Geos promises to correct the slow performance of today's system. Still, analysts said the Sony/General Magic/AT&T announcement would have the most impact on the PDA market in the near term, despite its high price point.

"This will make communications easier and will show that software can ... make things more useful," said Jerry Michalski, a contributing editor at the "Release 1.0" newsletter.

However, the PDA market will stay flat for the foreseeable future, industry observers said.

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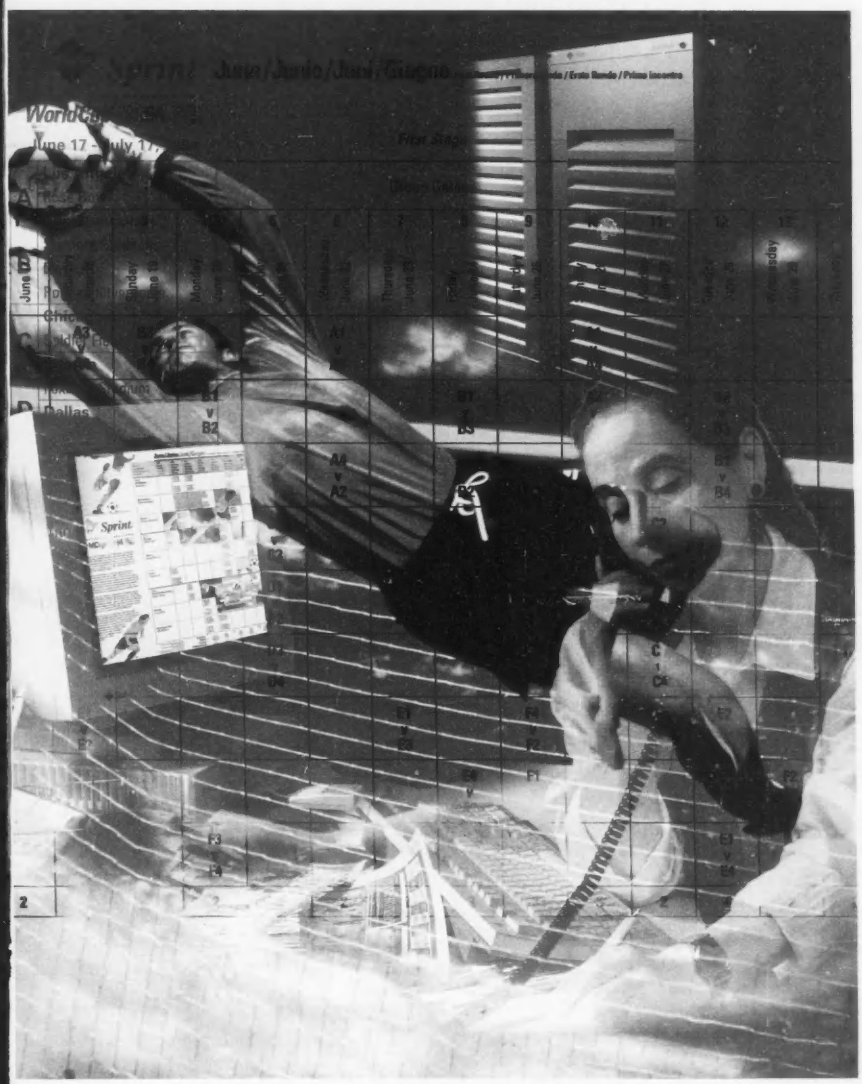

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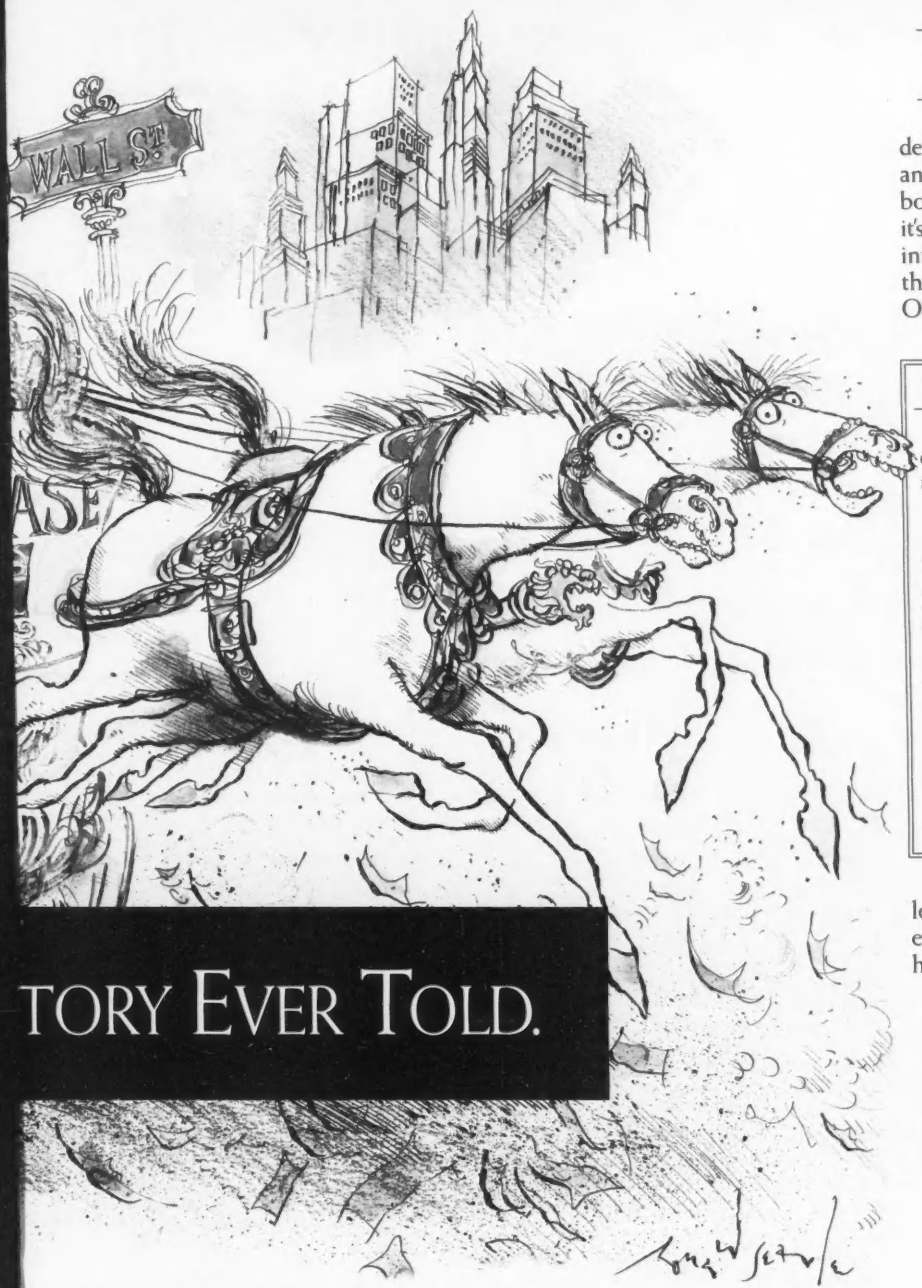

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IBM tool introductions promise customers visual lure

By Ed Scannell

IBM will kick off a series of fall programming announcements this week with the formal introduction and delivery of its VisualAge for Windows 2.0 and beta versions of Cobol for OS/2 and C/Set++.

The products represent IBM's effort to accelerate acceptance among its corporate developers of its VisualAge visual programming environment on the desktop without forcing them to abandon their underlying C++, Smalltalk and Cobol programming languages.

The IBM announcements set up another announcement later this month about adapting products such as C++ and Smalltalk for its MVS operating system.

IBM officials said this week's Cobol for OS/2 announcement is perhaps the most important because it means layering an object-oriented programming environment over a language used widely among its corporate users. Those Cobol customers can now create client/server applications with objects.

"For years, Cobol has been positioned as a legacy language you had to leave to do modern programming. You can build object-oriented applications and still have access to Cobol underneath," said Eric Bush, manager of IBM's enterprisewide application development strategy.

Object ORIENTED

Those in favor of the object-oriented version of Cobol for OS/2 said it will make their programming lives easier in terms of deploying client/server applications. Those against it said the product is a little too late in coming, and they have decided to head in another direction.

"Getting things like object-oriented Cobol makes it a lot easier to work with the mainframe as a corporate file server," said Kevin Godin, senior technical analyst at Canada Trust Mortgage in London, Ontario. "There are things you will probably never take off the mainframe, but this makes it easier for us to access those functions."

"We have so much momentum going now with [the current version of Smalltalk] that I can't see us building any new applications with it," said Jeff Headley, a systems architect at First Union National Bank in Charlotte, N.C.

A new Age

Some corporate users are eager to get their hands on VisualAge for Windows. The product, based on Smalltalk's engine, fully supports Microsoft Corp.'s Dynamic Data Exchange protocol. It also allows users to generate Windows code on top of Windows instead of generating Windows code under OS/2, Bush noted.

Users in some IBM shops said they think VisualAge for Windows will allow a much wider range of less experienced programmers to begin using visual programming techniques.

"One of the tough things today is getting people to learn Smalltalk because it is such a change in paradigms. A tool like this can minimize the learning curve and get more people involved in object development," Headley said.

"We would like to create a software factory here where, with a product like this, a few of our low-level object gurus can define classes and low-level objects so we can have a wider class of people building objects," said one senior programmer at a large Canadian-based insurance company under a nondisclosure agreement.

IBM will also introduce this week a version of C/Set++ with the VisualAge graphical programming environment layered on top. The product contains an improved browser that works with both compiled programs and C++ source code, a new linker and an improved interface said to make it easier to tap into the product's more powerful features.

Final OS/2 for Cobol and C/Set++ versions will ship in the first quarter, and VisualAge for Windows is due to ship later this month. Pricing has not been set.

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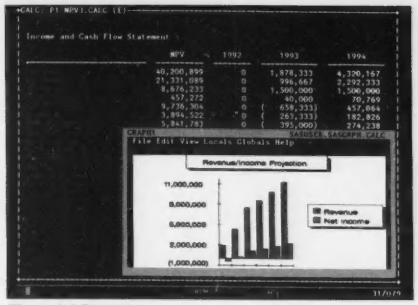

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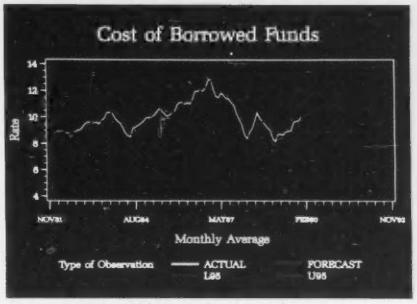

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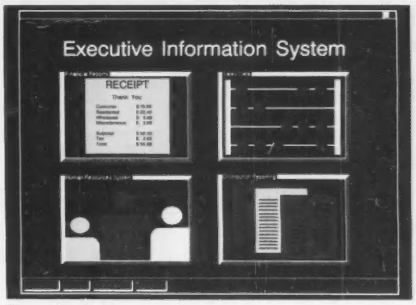

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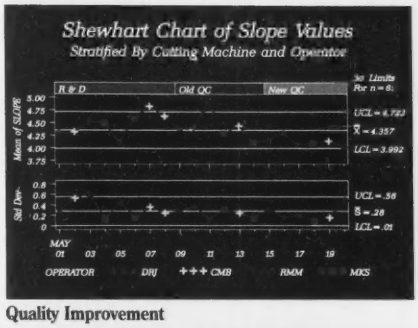

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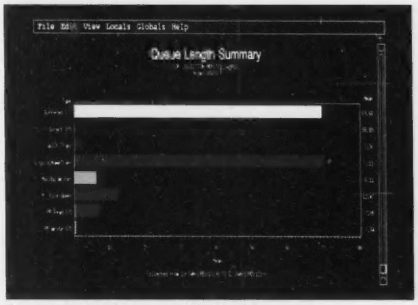

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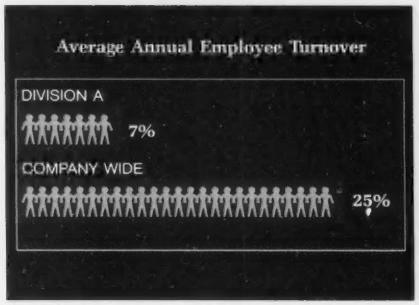

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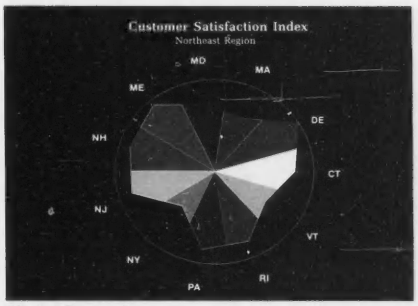

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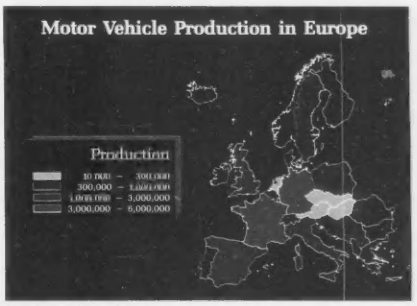
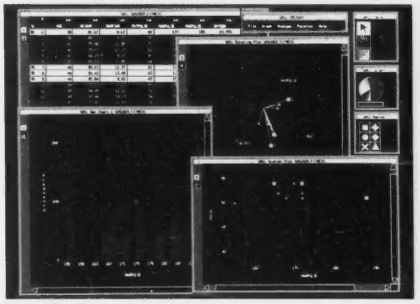


Business Graphs



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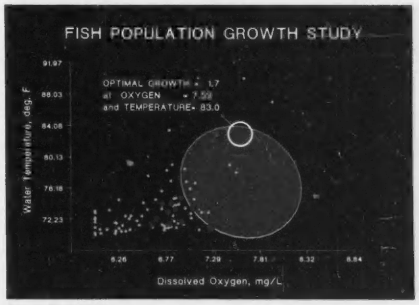


Data Analysis

Project Management

Toys R Us tries a different game

Retailer upgrades network, considers frame-relay technology

By Thomas Hoffman
PARSIPPANY, N.J.

Toys R Us, Inc. wants its heterogeneous platforms to play nice with each other.

To help make that happen, the $10 billion toy store chain this week will put the finishing touches on a new multimillion-dollar networking infrastructure for its North American outlets, distribution centers and headquarters. The upgraded Ethernet network is expected to help the Paramus, N.J.-based retailer share data more easily among multiple computing platforms.

The network upgrade reflects a trend among major retailers to increase network bandwidth. Other retailers, such as OfficeMax, Inc. and The Home Depot, Inc., recently turned to frame-relay networks to combine voice and data communications across the same lines to reduce telecommunications costs, said Thomas Friedman, editor and publisher of "Retail Systems Alert," a monthly trade publication in Newton, Mass.

Making the switch

Toys R Us is considering frame-relay and Asynchronous Transfer Mode technologies for its retail and corporate computing environments, respectively. For the past six months, the company has been testing frame-relay technologies from AT&T Corp. and Sprint Corp. between a limited number of stores, according to David Lockhart, director of systems integration for the toy store chain. Lockhart said the retailer expects to decide on a frame-relay platform by mid-1995.

"We think frame relay is excellent for [supporting] client/server as well as LAN-to-LAN communications," Lockhart noted. For example, fast-packet switching technology will help make Toys R Us' customer credit authorization response times more consistent between locations, he said.

If OfficeMax's frame-relay experiences are any indication, Toys R Us stands to gain substantially from fast-packet switching. OfficeMax executives said frame relay reduced the company's credit card authorization times by 80% compared with the former dedicated point-to-point connections. Plus, the office superstore expects frame relay will help reduce its communications costs by $2 million to $5 million annually.

The business that immodestly calls itself the "world's greatest toy store" also upgraded from thin-wire Ethernet to a 10Base-T scheme to more effectively manage each outlet. The upgrade will enable the company to roll out enterprisewide applications more easily. Lockhart declined to detail new applications the retailer intends to roll out across the network, citing proprietary business concerns.

Lockhart did say Toys R Us is counting on the TCP/IP protocol to enable its disparate Unisys Corp. A series mainframes, Digital Equipment Corp. VAXs and other systems to share information seamlessly.

"Our old infrastructure didn't prevent us from deploying new applications across the network, but it did make it harder," he explained. In addition to simplifying its application delivery mechanism, Toys R Us expects to manage its LANs more easily, improve network reliability and reduce overall network response times, Lockhart said.

With the thin-wire Ethernet setup, Toys R Us' network response times were compromised by the hundreds of Digital VAX servers and AT&T point-of-sale systems that the company uses across the continent. The new 10Base-T, hub-based network will alleviate those problems.

David Lockhart, *with company mascot Geoffrey, says frame relay will mean better client/server support*

Looking to the stars

Under its Galaxy networking project, Toys R Us has installed SynOptics Communications, Inc. Lattis System 2000SA intelligent Ethernet hubs at each of its 581 North American outlets. Lattis System 5000 hubs were also installed at the retailer's headquarters, its two data centers here and in Rochelle Park, N.J., and 16 distribution facilities. The contract with SynOptics is valued at more than $10 million over five years.

Before switching to frame relay, Toys R Us outlets will continue to communicate with headquarters and its distributors through satellite services from Hughes Network Systems, Inc. Analysts said the high cost of satellite services, coupled with troublesome data transmission delays, has prompted many retailers to explore higher-bandwidth, lower-cost terrestrial technologies such as frame relay.

Suite success benefits users

CONTINUED FROM PAGE 1

- An integrated bundle from Lotus Development Corp. that ties together the 1-2-3 spreadsheet with the Approach database.
- A Superbase, Inc. minisuite based on the Superbase database and the recently acquired D.B.express reporting tool.
- "Special edition" bundles of utilities and developer tools from AutoDesk, Inc. with its AutoCAD software. This promotion, which was to end next week, has been so successful that the company is extending it through the fall, a spokeswoman said.

Other packages

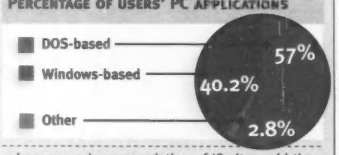
More repackaged bundles will follow. Borland International, Inc. is investigating the possibility of delivering a number of integrated client/server application bundles that include its databases and tools. Lotus is expected to bundle its Notes client with a CD-ROM version of its SmartSuite. Software Publishing Corp. is looking to deliver bundles of Harvard Graphics with value-added graphics applications.

Meanwhile, WordPerfect, the Novell Applications Group, will deliver a suite of applications this fall on CD-ROM that will enable users to choose any mix of WordPerfect applications they would like to run together. The more they choose, the higher the discount they will receive, said Mark Calkins, general manager of WordPerfect's business applications group. While Calkins would not specify prices, he said volume buyers would be paying nearly nothing by the time they chose their sixth application on CD-ROM.

Everything old is new again

DOS applications maintain an edge over Windows packages at user sites...

PERCENTAGE OF USERS' PC APPLICATIONS



...however, a large population of IS sites said they will migrate their DOS applications to Windows

PERCENTAGE OF USERS' APPLICATIONS CURRENTLY ON DOS

APPLICATION	Now	1995
Word processing	58.4%	24.6%
Database	39.3%	21.4%
Spreadsheet	55%	23.2%

BASE: 400 IS EXECUTIVES

Source: International Data Corp., Framingham, Mass.

The success of Microsoft Corp.'s Office bundle is widely considered to be responsible for pressuring other vendors to deliver suites at lower prices. Now Microsoft is about to turn up the heat again.

A major corporate reseller that asked to remain anonymous said a number of resellers and value-added resellers are preparing to launch Office promotions this fall with further aggressive pricing. Currently, Office sells at a street price of about $250 for the four-application suite.

"Software buyers have come to expect software to be sold at a deep discount," said Jeffrey Tarter, editor of the "Soft Letter" newsletter in Watertown, Mass. "Now, how could vendors stop that process?"

The answer for now is they won't.

"Delivering low-cost software in bundles is a fact of life in today's market," said Robert Savette, president of Superbase in Bohemia, N.Y. He said Superbase is changing its business model to register sales on a per-account basis rather than its current per-unit basis.

Hypothetically, Savette said, the new model would rather count on revenue from a 250-seat account than make a major onetime sale, even at a high software price, to a customer.

"If you have a minimum of 75 to 275 seats in one account, [then you] can approach them with a number of applications," Savette said. "With an account vs. the onetime sale, you can generate the numbers over the long term by offering consulting, education and the upgrades to the applications. Then you can start thinking in terms of them being a $200,000 account."

Short-term gains

While vendors look for the long-term profit margin, users who have not yet upgraded all their DOS applications will gain in the short term from the fall promotions. Vendors see the multimillion DOS user base — still the majority of the end-user market — as having huge potential for Windows applications.

"The No. 1 target of our PerfectOffice suites is our existing DOS customer," Calkins said. WordPerfect plans to launch DOS marketing campaigns this fall, and even more aggressive pricing is one of the options it is considering, he added.

These DOS users may be ripe for the taking, as many are not restricted by resource considerations.

In an August survey of its customer base of 400 users, WordPerfect found that nearly half of its WordPerfect DOS users are also on Windows. Only 2% said they did not upgrade to Windows because of limited resources.

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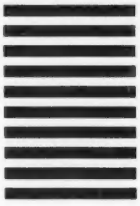

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Application developers who have moved to graphical development tools are learning a painful lesson: while prototyping is fast and easy, it's another thing to try to deploy enterprise applications.

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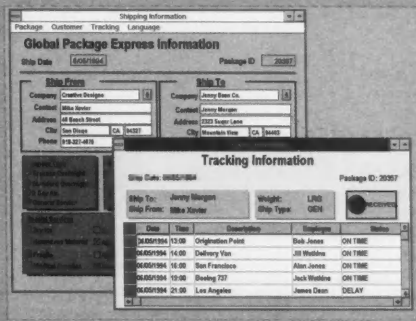

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Briefs

Media Vision revamps

Media Vision warned that it expects any Chapter 11 reorganization plan to result in a loss for shareholders due to lower-than-expected valuation. Holders of common stock will not receive interest in the reorganized firm. Also, Judson Goldsmith resigned as interim chief financial officer, and William Davis Jr. was appointed chief operating officer.

Progress results up

For its third quarter ended Aug. 31, **Progress Software Corp.** posted a revenue increase of 24% over the same period last year, up from $27.4 million to $33.9 million. Profits also increased, up 11% to $3.1 million from $2.8 million.

Cognos sees increase

Cognos, Inc. posted revenue of $40.5 million for its second quarter ended Aug. 31, a 10% increase over the same period last year. Income rose to $2.1 million, compared with $900,000 for the second quarter of last year. The client/server tools developer attributed the results to continued demand for its PowerHouse line.

Proteon perks up

Proteon, Inc. expects to report a profit for its third quarter ended Oct 1. Estimates include income of 10 cents to 20 cents per share, compared with a loss of 12 cents per share for the same period last year.

SHORT TAKES **EMC Corp.** has filed a patent infringement suit against competitor **Storage Technology Corp.** . . . **Wellfleet Communications, Inc.** and **SynOptics Communications, Inc.** will contribute three members from each of their boards of directors to serve on the board of the combined company, **Bay Networks, Inc.** . . . **Northgate Computer Systems, Inc.** filed for Chapter 11 in response to a Chapter 7 petition filed against it by three creditors.

Paul Allen's on-line kingdom

Microsoft co-founder building 'wired world'

By Stuart J. Johnston

■ Late last month, Paul Allen, the enigmatic co-founder of Microsoft Corp., sold off the last of his stock in America Online, Inc. It was an anticlimactic ending to what had shaped up last year as a less-than-hostile-but-not-exactly-friendly takeover attempt of the on-line services provider.

The deal began as the epitome of the billionaire's quiet but omnivorous style of investing in diverse components of the information superhighway. Its ending demonstrated Allen's shrewdness, even when he loses. He made a tidy $30 million profit on the $39 million sale of the last of his shares.

In fact, through myriad investments (see chart), Allen has positioned himself to play a role in most phases of the information food chain, from content creators to access tools to various types of distribution and delivery systems and even to the hardware itself.

"What I call the 'wired world' is a scenario where everybody is basically on-line [via] inexpensive, high-bandwidth digital channels into pretty much everybody's home and place of business," Allen said.

Weaving an on-line web

And although his investments at first glance look like a crazy high-tech quilt, Janice Maloney, senior editor of "Technology & Media," an industry newsletter in San Francisco, likens his efforts to that of a spider weaving a web.

"If you look at his investments separately, they seem very odd, and some have no hope of a return any time soon, [but] on the whole, you've got a powerful, powerful collection of companies," Maloney said. "He's making some incredibly smart investments."

All in all, Allen holds investments in more than 16 companies that, in one way or another, are linked to the wired world, including the following:

- Asymetrix Corp., a developer of business and multimedia tools.
- Interval Research, a firm involved in researching future information highway technologies.
- Starwave Corp., a content provider for CD-ROMs and on-line services.
- Ticketmaster Corp., the nation's largest ticket vendor.
- Egghead Software Corp., the nation's largest software retailer.

Allen holds controlling interest in each of these five companies, except Egghead, where he sits on the board of directors.

Earlier this year, Allen started The Paul Allen Group, headed by former Symantec Corp. executive Vern Raburn, to "track synergy in technology and management between companies," Allen said.

Fitting the pieces

But what kind of synergies are possible?

Allen, who is Microsoft's second-largest stockholder, is reluctant to reveal specifics, but his spokeswoman cited several examples of how the companies, or their technologies, might work together.

"People are already doing [events] ticketing on-line in Chicago and Florida, using Ticketmaster [services] on America Online," the spokeswoman said. "Another synergy would be to buy software on-line [possibly through Egghead], and Starwave has said they will deliver some of their titles on-line."

Paul Allen: *Owns a piece of most phases of the information food chain*

One of the first fruits of this synergy will be up-to-date on-line service for users of sports statistics, which Starwave receives from Sports Team Analysis & Tracking Systems in Skokie, Ill., also an Allen investment.

Still another example may be found in "pure research" firm Interval Research in Palo Alto, Calif., which Allen founded. Among other projects, Interval is working on interface designs for intelligent agents to help users navigate the information superhighway. To run Interval, Allen hired David Liddle, Xerox PARC alumnus, founder of Metaphor, Inc. and former head of IBM co-venture Patriot Partners.

"The fruits of [Interval's] research will be disseminated to the other Allen companies" including Asymetrix, Allen said.

No end in sight

Even deals gone awry do not deter Allen, who left active day-to-day participation at Microsoft in 1983 when he was diagnosed with Hodgkin's disease, which is now in remission. Undaunted when the America Online deal fizzled, Allen has moved to provide services through other on-line services.

Allen said he plans to provide services on Ziff-Davis Publishing Co.'s Interactive Interchange On-line Network and Microsoft's as-yet-unannounced on-line service, which is code-named Marvel.

"Starwave and others are developing products to run on these services," Allen said.

In other areas, Allen is increasingly investing in transmission media as well.

For example, his investments in several wireless networking companies will have a payoff for business, Maloney said. These are among his smartest investments in light of the recent auction of wireless transmission licenses by the Federal Communications Commission, which garnered hundreds of millions of dollars in bids, she added.

"It doesn't take a rocket scientist" to see that on the whole, Allen's strategy is very carefully thought-out, Maloney said.

"The year 2000 is not that far away, [and] we all need to think about and plan for what we can do in that environment," Allen said.

Allen's empire

Companies in which Allen owns controlling interest include the following:

- **The Paul Allen Group:** Coordinates strategy and technology transfer for Allen's companies (owns 100%).
- **Asymetrix Corp.:** Makes multimedia and business applications tools.*
- **Interval Research:** Researches future information highway technologies (owns 100%).
- **Starwave Corp.:** Develops multimedia content for CD-ROMs and on-line services.*
- **Ticketmaster Corp.:** Provides computerized events tickets (owns 80%).
- **Cardinal Technologies, Inc.:** Builds sound cards and modems (owns 51%).

Companies in which Allen owns a minority interest include the following:

- **Microsoft Corp.:** Second-largest stockholder (owns 13% and is a board member).
- **Egghead Software Corp.:** National software retailer (owns 7.4% and is on the board).
- **U.S. Satellite Broadcasting:** Direct broadcast satellite (digital) television provider.*
- **ARI Network Services:** Provides on-line ordering and billing services (owns 15%).
- **Harbinger-EDI Services:** Provides software to automate electronic data interchange.*
- **Metricom, Inc.:** Wireless data networks (owns 17.5%).
- **Nationwide Wireless Network:** Wireless data network (invested $10 million*).
- **Sports Team Analysis & Tracking Systems:** Computerized sports statistics.*
- **Telescan, Inc.:** On-line financial data for investors (owns 17.7%).
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- **Lone Wolf, Inc.:** Makes multimedia networking products.*

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Editorial

Forward motion

You can't blame Lotus for acting a little self-satisfied right now after signing a joint development deal with Oracle late last month.

In the battle for groupware supremacy, Lotus stared down a formidable competitor in Oracle and won. Oracle will still take on Lotus' Notes with its own Oracle Documents software later this year. But in agreeing to build tighter links between its database management system and Notes, the company will help fill a key shortcoming in Lotus' strategy.

But the big challenges still lie ahead for Lotus. With Notes fever at its height, Lotus faces the formidable task of transforming a hot product into a long-term standard. With Notes, Lotus has the chance to do what it did with 1-2-3 and what only a handful of software companies have accomplished: create a broadly supported platform for third-party applications. But to do this, it must fend off a slew of competitors — not the least of which is Microsoft — while not discounting the value of Notes so heavily that it wrecks the business.

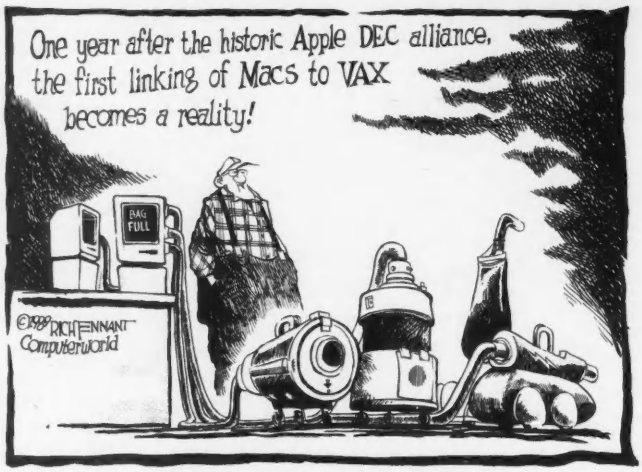
Notes' unusually large head start on the group applications market has enabled Lotus to sustain a street price of more than $300 per copy for more than two years. But now the barbarians are at the gate. Low-cost conferencing systems from competitors such as Collabra Software, Inc. and First Floor, Inc. are pressuring Notes from below, Microsoft has mounted its own vapor attack and Novell is getting its Groupwise act together.

Cost pressure prompted Lotus last month to reverse its long-standing opposition to releasing a "light" version of Notes. I expect Notes Express to be a dud in the market. But I don't think Lotus wants it to do that well in the first place. Notes is a powerful development platform and selling it as a $99 news group reader undermines Notes' inherent value.

The bigger challenge for Lotus is on the high end. In many organizations Notes becomes "installware," something that is loaded on a server and then sits unused because no one knows what to do with it. Lotus needs to convince users that Notes features are so compelling that the high cost of training users and IS developers — which can easily exceed the price of the software — is worth it.

Lotus commissioned at great expense an International Data Corp. white paper that said Notes delivers a 109% return on discrete applications. But what I found more interesting about the report was a passage on passion. "When all else fails to convince people that Lotus' Notes is the right thing to do," it states, "passion often wins the day." Notes enthusiasts are indeed a zealous bunch. Maybe what Lotus needs more than return on investment studies is a program to convert that passion into a legitimate business crusade.

Paul Gillin, *Editor*
Internet: *pgillin@cw.com*



Rich Tennant is on sabbatical. This is one of his classic cartoons from 1989.

Letters to the editor

Programmer certification: Leave well enough alone

"Can programmers commit malpractice?" [CW, Aug. 29] doesn't touch on that issue at all. Instead, the two sides in the "debate" repeat the opposing dogmas of the programmer licensing conundrum.

Don Gotternbarn's most offensive proposal is the requirement of a four-year degree to establish competency. Curriculums aren't standardized, there are huge variations among schools, and what is taught in college often has little application in the real world of programming. In the 15 years I've been programming, the best programmers I've known have almost all been self-taught, with no college degree or with a degree in an unrelated subject.

Critical thinking and good communications skills are far more important to programming success than technical details. Most programming projects that fail don't fail because of bad programming but because of bad planning, bad management and bad communication. And the huge variations in productivity and skill among individual programmers make measurement and standardization almost impossible.

When licensing and certification are introduced and standardized for business executives and college professors, and the public is thereby protected from bad management and teaching, I will be willing to entertain the idea of licensing for my profession.

Gregory Jorgensen
Systems analyst
Radix Consulting, Inc.
Eugene, Ore.

The government does not have to control certification and licensing. Currently, the Institute for Certification of Computer Professionals has tests that work and can be expanded to qualify specific additional technical skills.

James B. Webber is mistaken and disillusioned in thinking that the courts can work out complex liability issues. Without programming practice standards, they are not equipped to render consistent and justifiable decisions.

The marketplace is not weeding out programmers who are not proficient. Most users can't properly evaluate the skill level of programmers until a project fails. Intelligent software vendors are already certifying skill levels related to the use of their products. Webber asks what will happen to employed programmers who fail the exam. How about education and training for them and an opportunity to pass the certification/licensing exam? Do we really want unqualified programmers developing mission-critical information systems?

Leonard F. Turi
President
TMS Consulting Services, Inc.
New York

As James B. Webber accurately points out, "the marketplace for programmers is highly competitive" and therefore self-regulating. The courts, liability laws and Errors and Omissions insurance covers product and professional liability completely. Even companies that produce software for the medical and aviation industries would not be in business long if their products killed or maimed consumers. The need for certification/licensing is not here.

Of course, there are poorly designed software systems and products, but the marketplace quickly weeds these out — if your product stinks or has many bugs, it does not sell. When the product fails to sell, the programmers and designers lose their jobs. It really is that simple in nonregulated business.

Businesses are not requesting certification of programmers because they know of no horror stories (death or disfigurement by means of computer software). The only area where certification/licensing is an issue is at the Institute for Certification of Computer Professionals and in government looking to increase its revenue.

Alan J. Chwick
Director
TCM Integrated Systems, Inc.
Freeport, N.Y.

More letters, *page 34*

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What's in a name?

Michael B. Cohn

The name-calling has gone far enough! Software Engineers unite! We're taking all kinds of heat from pencil pushers — bureaucrats who claim that us hardworking, clean-living IS folks shouldn't use the term engineer.

I don't want to get nasty here, but if anyone has earned the title it's us. Structural Engineers? Electrical Engineers? Come on, that stuff is for sissies. But if they want to open a can of worms, then two can play at this game.

Do you have any idea how many other professions are using misleading terms? Many titles are downright wrong, immoral, or, at least, pretty hard to spell. So let's get the Washington word police to stop picking on us innocent and, occasionally, behind-schedule techies and start focusing on the really bad guys — the guys who use titles such as the following:

Doctor. Easily the worst offenders. Sure there are a few real doctors, but even some of them are suspect, especially when they get $240 just for looking in your mouth with a Popsicle stick. But it's those Ph.D. "doctors" who really tick me off. They're not surgeons or urologists. They probably can't even play golf. Instead, they spend a few cushy years in graduate school studying Mediterranean Sociology and suddenly they're getting a better table than me at Mario's.

Computers get viruses. If anyone should use the term doctor it should be us — unless Clinton comes after us with that health care reform stuff.

Mechanic. Let's be realistic. If you fix cars, I suppose you can call yourself a mechanic. But if you don't fix cars until the third or fourth try, you're never finished on time and you're always much more expensive than your estimate, then bag the "mechanic" title. You'd probably be more accurate calling yourself a Software Engineer.

CIO. Let's go right to the top. Granted, our CIO is an "Officer." I mean, he has an office. I know this because I spent most of last week in it, being told that if I didn't finish the payroll project on time, I wouldn't be a Software Engineer much longer. The "Information" part is okay. We give him lots of information. Then again, it's usually the wrong information, but no one has to know. What I contend is that calling him "Chief" is an outright lie. Chief means control. Power. Authority. Who in IS truly possesses skills like these? Only our Department Secretary.

If you don't fix cars until the third or fourth try, never finish on time and always run over your estimate, then bag the "mechanic" title and call yourself a Software Engineer.

Operator. It's the '90s, do operators really operate? Mainframes run unattended and libraries load their own tapes. Heck, today's operators are more like programmers.

End user. Hey, everyone's fair game. First of all, if you're so inept you can't even log on, then you're not a user, you're a preuser. And if you then pick up the phone and whine at IS, at best you've become a phone user. To be an "end" user, you can't just sit on it. You need to do something! Finish something! Be at the end of something — and your wits don't count.

Consultant. I have no problem with "Consultant," it's just that I've never met one. Instead, I've met Architects, Technology Advisers, System Strategists, even Business Re-engineers. Wait, I almost met a Consultant once, except his card said "Senior Consultant." I didn't believe him. He didn't even have gray hair ... until after the project. I figure we did the guy a favor.

And speaking of those Business Re-engineers, they're probably in a heap of trouble. If we aren't allowed to engineer it, no one should try to re-engineer it. On our last project, we paid some guy $200 an hour for 16 months before we realized no one should try to re-engineer it.

Cohn is author of the humor book *Fear of Computers* and engineers software at a large high-tech employer.

Microsoft's world domination and the Novell choice

Patricia B. Seybold

I just returned from a trip around the world. Everywhere I went, I was struck by the extent of Microsoft's mind share and the market share gains that will follow. Customers in Africa and Asia are succumbing to the appeal of Microsoft Office. They are being seduced by the promised price/performance of the Windows NT/SQL Server combination. And, they are looking forward with enthusiasm to Windows 95.

That is kind of depressing. Don't get me wrong. I have nothing against de facto standards. Nor do I begrudge Microsoft its well-earned success. What I am concerned about is an absence of healthy competition on the desktop and in departmental computing. And, I'm concerned that the enterprise computing market will soon succumb to Microsoft's magic as well.

What alternatives do customers have? On the desktop, the battle is over for the next two years. Windows has won; long live Windows. With the advent of Windows 95, the PowerPC may have another shot as customers evaluate ease-of-use alternatives. But that's a long shot given the investments already made in Intel/Windows desktops.

The really interesting remaining player that has a prayer of recapturing the hearts and minds of departmental users and offering an alternative to enterprise computing is Novell.

I'm concerned that the enterprise computing market will soon succumb to Microsoft's magic as well.

Novell on top?

The new Novell — Bob Frankenberg's Novell — has an opportunity to come from behind and offer valuable services and capabilities that the Redmond Raiders can't yet deliver: more transparent networking, seamless LAN/WAN integration, better network management services, better application development tools for distributed applications, better support for the mobile user and better support for electronic commerce and interactive information services.

Maybe I just like rooting for the underdog, but I'll place my bets on Novell for this next round.

What does Novell have going for it besides a new focus and a new CEO? Forty million NetWare users aren't a bad start. And, Frankenberg hopes to win the hearts and minds of 30 million Unix users as well. If Novell can succeed where no other Unix supplier has succeeded to date — in unifying the fragmented Unix market around one Unix, Novell's UnixWare — they may have a prayer.

Can Novell combat Microsoft on the desktop? Of course not. They'll endorse Windows 95. They'll even support NT. Novell understands that the only way to win back the hearts and minds of its customers is to endorse Microsoft's products and strategies, integrating tightly with them and adding value. That's a tall order. The real question is, will Novell be able to get customers to take it seriously as a provider of robust, distributed computing and network services, not just file and print services? I think Novell is up to the challenge. I just hope customers haven't already closed their minds.

Seybold is president of Patricia Seybold Group in Boston. Her Notes address is Patricia Seybold@PSOCG. Her Internet address is PSeybold@PSGroup.com.

Letters to the editor

Certification is the wrong approach

I agree with James B. Webber that it is unnecessary and even counterproductive to require licensure ["Can programmers commit malpractice?" CW, Aug. 29]. The question of product liability has already been answered; programmers are liable if their products fail because of their error.

The way to guarantee critical software components is not to saddle the entire industry with bureaucracy but to develop better testing methodologies and use third-party testing labs to certify systems. Why should the hundreds of thousands of programmers who write accounting software pay for the possibility that the 10 programmers writing nuclear warhead-triggering software might make a mistake?

Requiring certification would also drive programming jobs abroad, where certification would probably not be necessary. There are still too many people who believe that government has to fix every problem.

George Ray
New York

I've been programming professionally since 1983. My complete academic training for programming includes two semesters of Basic in high school along with the regular college prep stuff. I haven't attended college yet, but that hasn't stopped me from becoming a programmer, systems programmer, systems programming manager and, finally, vice president at a major Midwestern bank.

I've hired and fired programmers with college degrees who could probably take great tests but have no imagination to be problem-solvers.

There is no best way to program. I've been successful with mine, and I'm certain others have been with theirs. The final acid test will always be the field, not the government. I'm curious whose interests Don Gotternbarn is really looking out for.

Thomas Gagne
Vice president
Comerica Bank
Detroit

Licensing can serve useful purpose

I would have approached the discussion "Can programmers commit malpractice?" a bit differently.

I believe that licensing serves two missions: The first is to give programmers professional credibility that they evidently lack (as demonstrated by the witch hunt against the title "software engineer"); the second is to correct the paranoia that programmers are powerful renegades who can cause the world to collapse with one irritable keystroke.

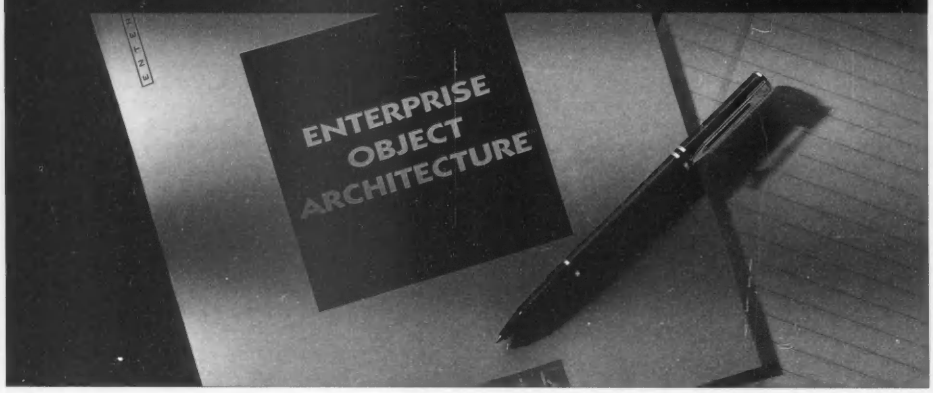
Creating a Programmer in Training/Professional Programmer classification should solve the first problem without bureaucracy or unemployment. Unlicensed programmers would still fill the majority of entry-level slots; it is up to the employer to determine the value of licensing in its organizational hierarchy.

The second problem is another story entirely. What makes people feel safe about medicine, for example, is not the American Medical Association but the Hippocratic oath.

Perhaps upon completion of a difficult Professional Programmer certification, programmers could swear to a short promise to work in a socially benign way.

Jessica Bailey
Director of marketing
Handmade Software, Inc.
Fremont, Calif.

"MY CLIENT/SERVER PROJECT IS STALLED. I DON'T NEED ANOTHER TOOL. I NEED A STRATEGY."



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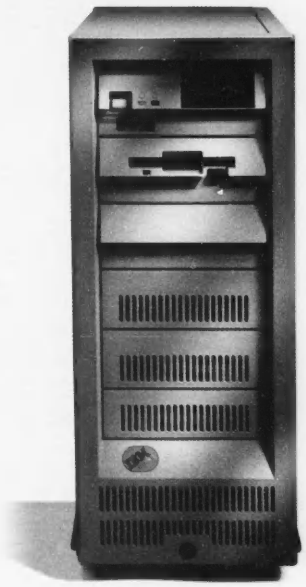

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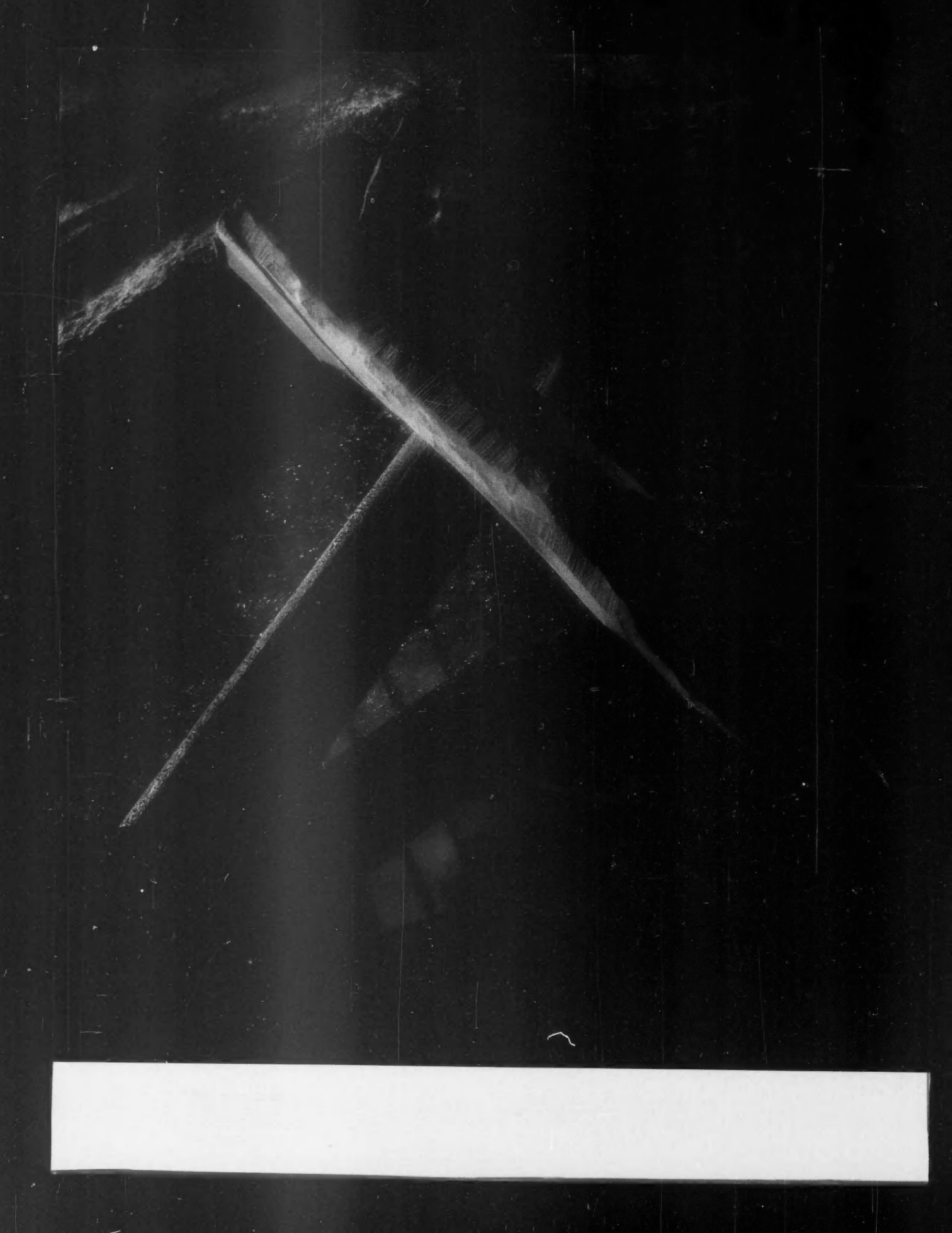

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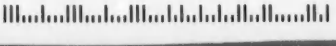

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Utilities may brighten PCMCIA's dark side

By Michael Fitzgerald

The Dr. Jekyll/Mr. Hyde personality of PC Cards is getting treatment, as BIOS vendors develop features to address the ugly side of the PCMCIA standard.

The treatment comes none too soon, say information systems managers. They like the functionality they gain from the innocuous-looking little cards, but not the memory-hogging, power-sucking, migraine-causing second personality of the PC Cards. This personality brutalizes systems configurations, pummels memory management and can leave users dazed and confused.

"I've had some reliability issues with PC Cards," said Bruce Benham, vice president of IS at RE/Max International, Inc. in Englewood, Colo. Benham's main complaint is configuration conflicts.

Update coming

PC Cards, the products that work in the PCMCIA form factor, should work together more effectively when Berlin, an updated version of the standard, reaches the market. The Personal Computer Memory Card International Association (PCMCIA) recently ratified Berlin and is to announce the specification late this month.

Possible cure

Help coming from the vendor side is headed by SystemSoft Corp., the Natick, Mass., company that is a market leader for PCMCIA BIOS, with Compaq Computer Corp., IBM PC Co. and NEC Technologies, Inc. among its licensees.

SystemSoft recently announced it is readying three products, CardWizard, CardLite and CardPower, for sale to OEMs. The products address several user issues:

- **CardWizard** gives users a way to diagnose and address configuration issues. PC Cards can conflict with other cards or the system software configuration in certain cases. A system using a modem card might not send a file for no apparent reason, or in some cases, the system locks up. CardWizard will identify configuration problems upon installation and tell the user how to fix the problems.
- **CardLite** addresses the basic PCMCIA standard's memory lust. The standard today requires up to 90K bytes of low memory, which means cards can cause memory conflicts. CardLite will give users a way to use the modem card in only 15K bytes of memory or a PCMCIA hard drive in 25K bytes.

PCMCIA, *page 41*

Quattro Pro's future rides on Novell's suite success

By William Brandel

■ For the first time since it acquired the product last spring, Novell, Inc. has rolled out an updated version of Quattro Pro for Windows.

Version 6.0 of the spreadsheet includes new Microsoft Corp. Object Linking and Embedding 2.0 features and a new user interface, and it will be one of the anchor applications of the PerfectOffice suite that Novell plans to deliver sometime this fall. However, while most note that the spreadsheet is an improvement over the last version, it may be too little, too late to make much difference in the competitive market.

Lost opportunity

Calling the new application a nice example of integrated number crunching and data presentation capabilities, Jeff Tarter, editor of the "Soft Letter" newsletter in Watertown, Mass., said Quattro Pro may have already missed its market opportunity.

"Quattro was once an innovator in the spreadsheet market," Tarter said. He said the spreadsheet's former owner, Borland International, Inc., was a pioneer in terms of giving spreadsheet users good graphics in addition to number-crunching capabilities. However, Microsoft, with its Excel spreadsheet, and Lotus Development Corp., with its 1-2-3 spreadsheet, have caught up with and in some regards surpassed the features Quattro Pro has offered.

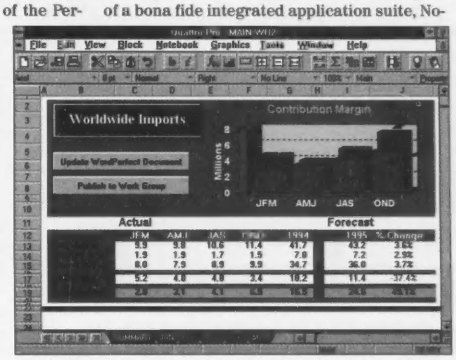
"It's hard to take Quattro real seriously now," Tarter said.

Quattro Pro 6.0 for Windows offers some new features that other spreadsheets already include. These include OLE 2.0 support functions such as in-place editing, drag and drop and OLE automation.

The product will also now be offered as part of a bona fide integrated application suite, Novell's PerfectOffice. Previously, Quattro Pro was part of the ill-fated Borland Office, which was considered kludgy and unintegrated.

Quattro Pro also includes some features that may make it easier for unsavvy spreadsheet users to use. Like Borland's new version of Para-

Quattro Pro, *page 41*



Quattro Pro *was a pioneer in terms of good graphics, but now Microsoft's Excel and Lotus' 1-2-3 are catching up*

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FAST ETHERNET AND DMI: TWO NEW STANDARDS THAT PUT MORE CONTROL IN SIGHT.

Today's business environment is putting greater demands on our networks than ever before. Multi-megabyte e-mail, graphics and multimedia files are becoming quite common. But so are network traffic jams. And to complicate things further, the thousands of products that make our PCs so flexible are also making them harder to manage. In this brief, we'll tell you how Intel is working with other industry leaders to develop two new standards—Fast Ethernet and the Desktop Management Interface—to help you manage and control your network.

FAST ETHERNET

Given the demands on today's networks, even the most powerful PCs are becoming handicapped by 10 Mbps Ethernet. So in an effort to increase Ethernet throughput, Intel joined with other industry partners in 1993 to form the Fast Ethernet Alliance.

What resulted was a specification for ten times the original 10 Mbps bandwidth. The new 100 Mbps Ethernet provides all the bandwidth today's new technologies require while maintaining the original CSMA/CD protocol. Which means companies don't have to sacrifice their original Ethernet investment.

THE DESKTOP MANAGEMENT INTERFACE

But network traffic isn't the only place we're losing control. The more than 80,000 applications and products that can be added to the PC have made it much more flexible, but they've also made it more difficult to control because they have no common form of management.

That's why Intel formed the Desktop Management Task Force with companies like AST,* Compaq,* DEC,* Dell,* HP,* IBM,* Microsoft,* Novell,* SunSoft,* Symantec* and SynOptics.* The goal was to create a technology that allowed manufacturers to design management capabilities and intelligence into their products.

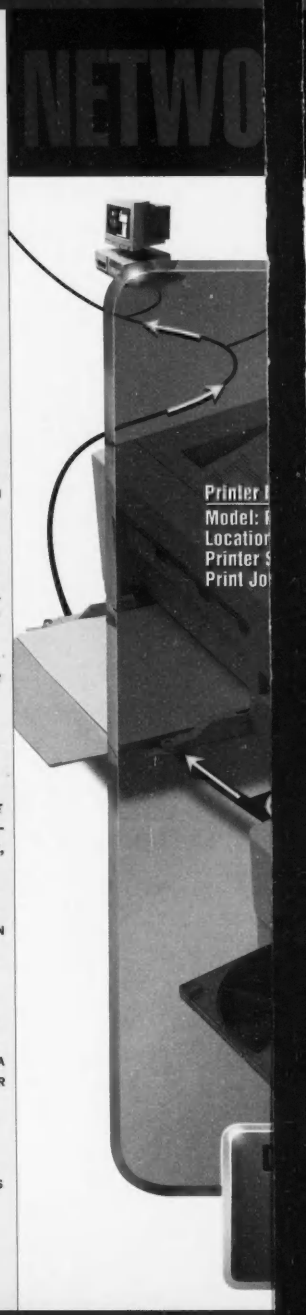
Their answer was the Desktop Management Interface (DMI). DMI is a technology that defines a standard mechanism for accessing and configuring data in any piece of hardware or software.

MANAGING THE PC'S MANY PIECES

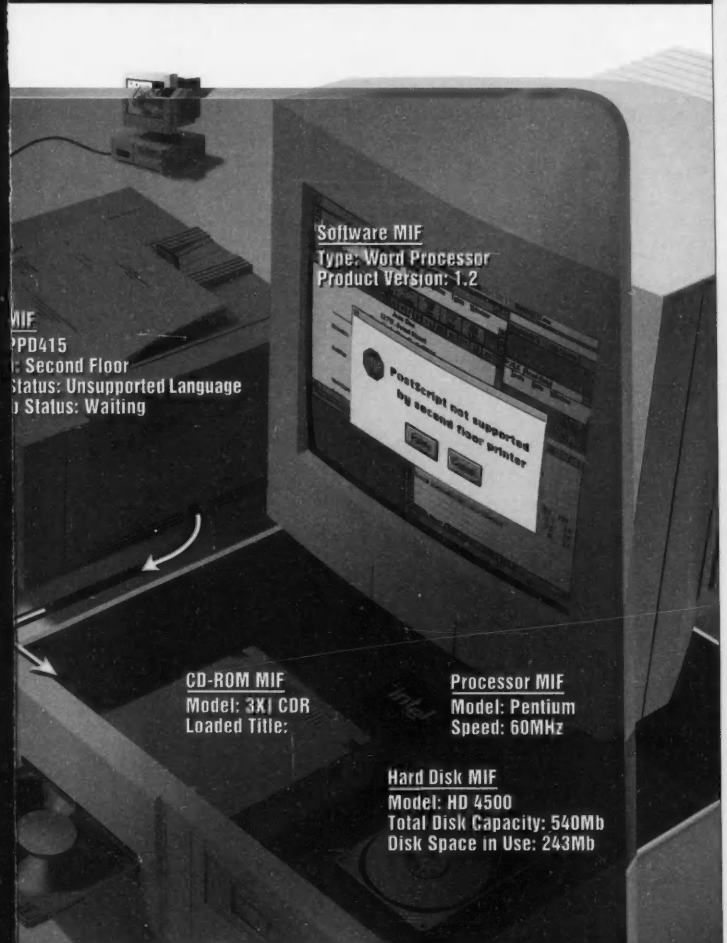
DMI ACTS AS AN INFORMATION BROKER, ENABLING A LAN MANAGER TO GAIN CONFIGURATION DATA ABOUT THE DESKTOP AND ITS MANY PERIPHERALS AND APPLICATIONS. TAKE SOFTWARE DISTRIBUTION, FOR EXAMPLE. WITH A DMI-COMPLIANT MANAGEMENT APPLICATION (LIKE INTEL'S LANDESK™ MANAGER SOFTWARE), A LAN MANAGER CAN TELL WHAT VERSION IS CURRENTLY RUNNING, AS WELL AS GET INFORMATION ABOUT THE SYSTEM'S PROCESSOR, MEMORY AND DISK CAPACITY. THIS ALLOWS HIM TO SET UP THE SOFTWARE BASED ON THE CONFIGURATION AND FEATURES OF THE PARTICULAR PC, SIMPLIFYING THE INSTALLATION PROCESS.

TROUBLESHOOTING IS ALSO SIMPLIFIED BECAUSE DMI-COMPLIANT PRODUCTS CAN SUPPLY INFORMATION ABOUT AN ERROR, REQUEST, OR UNEXPECTED EVENT. FOR EXAMPLE, A DMI-COMPLIANT PRINTER WILL BE ABLE TO COMMUNICATE THAT IT IS JAMMED OR OUT OF PAPER, RATHER THAN SEND A VAGUE "CANNOT PRINT" MESSAGE.

BEFORE DMI, A TRIAL AND ERROR PROCESS HAD TO BE PERFORMED TO FIND OUT WHAT RESOURCES WERE ON A SYSTEM, AND OFTEN THE USER HAD TO BE ASKED TO LOOK UP THE DIFFERENT CHARACTERISTICS OF A MACHINE. BUT TODAY, DMI PROVIDES A STANDARD WAY TO ACCESS THAT INFORMATION.



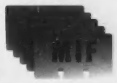
RKING TECHNOLOGY



ESKTOP MANAGEMENT INTERFACE

DMI GIVES LAN MANAGERS A WINDOW INTO THEIR PCS, ALLOWING THEM TO MONITOR, MANAGE OR CONFIGURE ANY DMI-COMPLIANT PRODUCT EITHER LOCALLY OR REMOTELY. USERS CAN OBTAIN SPECIFIC INFORMATION ABOUT THEIR NETWORK. FOR EXAMPLE, PRINTER PROBLEMS.

HOW DOES DMI WORK?



BASICALLY, DMI IS SOFTWARE CALLED THE SERVICE LAYER AND AN ASCII DATABASE CONTAINING MANAGEMENT INFORMATION FORMAT FILES (MIF FILES).

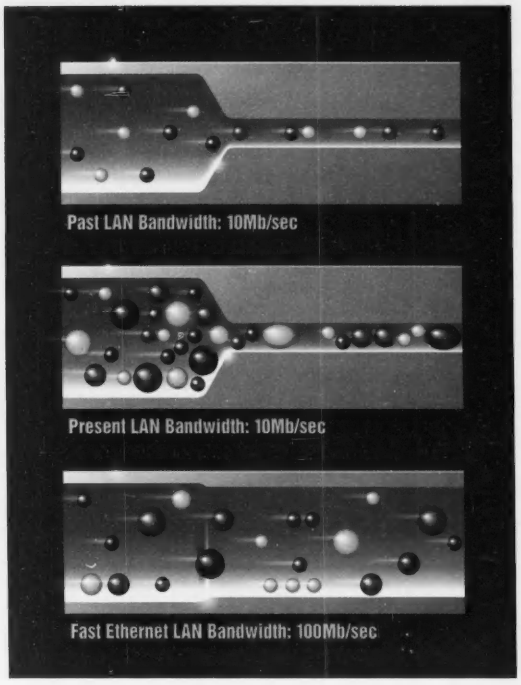
EVERY DMI-COMPLIANT PRODUCT SUCH AS A HARD DISK, CD-ROM, ETC. HAS ITS OWN UNIQUE MIF DESCRIBING ITS IDENTIFYING CHARACTERISTICS LIKE MODEL NUMBER, SERIAL NUMBER AND SPEED, AS WELL AS THE DEVICE'S MANAGEABLE CHARACTERISTICS, SUCH AS A MONITOR'S RESOLUTION.

THE SERVICE LAYER

WHEN AN APPLICATION OR HARDWARE PRODUCT IS INSTALLED, ITS MIF IS PASSED TO THE SERVICE LAYER AND THEN STORED IN A DATABASE ON THE PC'S HARD DRIVE. THE SERVICE LAYER IS SOFTWARE THAT RESIDES IN THE OPERATING SYSTEM AND ACTS AS A TRAFFIC CONTROLLER, HANDLING ALL REQUESTS FOR DATA IN THE MIF. THE SERVICE LAYER DYNAMICALLY NOTIFIES MANAGEMENT APPLICATIONS OF THE NEW DEVICE, THEN MAKES INFORMATION ABOUT THAT DEVICE AVAILABLE TO OTHER PRODUCTS—EVEN IF THEY'RE FROM DIFFERENT MANUFACTURERS.

INCREASING DEMANDS ON NETWORK BANDWIDTH

THE AVERAGE NUMBER OF USERS CONNECTED TO NETWORKS HAS ALMOST DOUBLED OVER THE PAST FEW YEARS. AND THE NUMBER OF MESSAGES PER USER ON THE NETWORK HAS GROWN AS WELL. BUT PERHAPS MORE IMPORTANTLY, THESE MESSAGES HAVE GROWN IN SIZE. FOR EXAMPLE, E-MAILS OFTEN CONTAIN SEVERAL DOCUMENTS OR MULTIMEDIA AND GRAPHICS FILES. ALL OF THIS PUTS A TREMENDOUS STRAIN ON NETWORK BANDWIDTH. BUT WITH TODAY'S FAST ETHERNET SPECIFICATION, THE ORIGINAL 10 MBPS BANDWIDTH IS INCREASED TO 100 MBPS, PROVIDING MORE THAN ENOUGH ROOM FOR THE LARGE NUMBER OF USERS TRANSMITTING LARGE QUANTITIES OF DATA OVER THE NETWORK.



WHAT DO DMI AND FAST ETHERNET MEAN TO INTEL PRODUCTS?

In addition to developing these two new standards, Intel is incorporating them into their new networking products.

For example, the new Intel EtherExpress™ PRO/100 adapter cards utilize the Fast Ethernet standard, making them the first network interface cards to integrate seamlessly into your Ethernet environment at both 10 Mbps and 100 Mbps.

Intel's entire line of EtherExpress PRO adapters supports the DMI specification. Which means a LAN manager, working from any DMI-compliant application, will be able to access information about the adapter's address, IRQ, drivers and more for maximum network control.

DMI will also be supported in the next version of Intel's LANDesk Manager software, providing a robust, end-to-end solution.

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Clients for SMS arrive

By Stuart J. Johnston

Users who have waited impatiently for Microsoft Corp.'s Systems Management Server (SMS) seem to have gotten some wishes granted at Windows World in Dallas last month in the form of products that work with it.

For example, SMS got a big boost from a quiet announcement by Digital Equipment Corp. The Maynard, Mass.-based computer maker said it will ship by year's end SMS clients for its proprietary VMS operating system and six popular versions of Unix, thereby addressing a complaint of many users who manage heterogeneous systems.

Availability of those clients will mean users can inventory hardware and software and distribute software to Unix and VMS desktops from a Windows NT Server, said Barbara Liberty, business manager for software asset management in Digital's networked system management group.

Versions of Unix that will be supported by the pending clients include Digital's Ultrix, IBM's AIX, Hewlett-Packard Co.'s HP/UX, Sun Microsystems, Inc.'s Solaris and SunOS and the Open Software Foundation's OSF/1, Liberty said.

At the request of users, Microsoft has also dropped a requirement that resellers that want to sell SMS from November to January take a course in setting up and maintaining SMS, said Rich Barth, SMS product manager. In July, the company said only those authorized resellers that had been certified would be allowed to sell the product in the early months of its availability [CW, July 25].

SMS will also work with several popular network management tools, including Digital's PolyCenter Manager on NetView, HP's OpenView, IBM's NetView/6000, Computer Associates International, Inc.'s UniCenter and Network Managers NMC Vision, Barth said.

And for those users who would rather not wait until a future release of SMS provides licensing server support, Express Systems in Seattle said it will ship its Express Meter Optimization Module by Nov. 1. The licensing package, which will cost $495 per server, will integrate with SMS and provide software metering, said Paul Davis, director of sales and marketing at Express Systems.

Mapping software helps HUD

By Mitch Betts
WASHINGTON

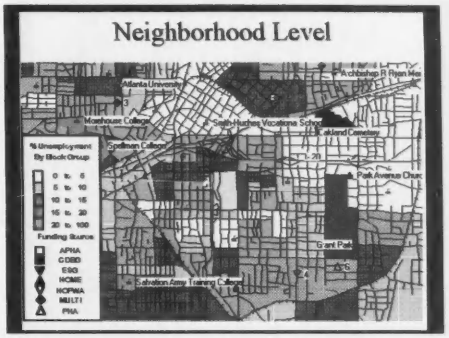
For several years, retailers have been using desktop mapping systems to pinpoint the best locations to do business. Now, the government agencies that dispense federal funds to communities are trying the same approach.

The U.S. Department of Housing and Urban Development (HUD) last month announced that it has distributed desktop mapping software to help 1,000 of the nation's cities and counties do a better job of funneling $6 billion in federal aid to the neediest communities.

The mapping software, along with a custom CD-ROM database of census and HUD data, allows community planners to view maps of city neighborhoods that are color-coded to identify areas with high unemployment and low income. Existing and proposed government projects, such as housing rehabilitation and job-training centers, can be plotted.

The idea of distributing the mapping software to community planners was the brainchild of Andrew M. Cuomo, HUD's assistant secretary for community planning and development, who said he is trying to "move HUD into the 21st century."

The plan was carried out by prime contractor Orkand Corp. in Silver Spring, Md., and Troy, N.Y.-based MapInfo Corp., a desktop mapping software vendor. The delivered software — actually a custom-integrated suite that includes mapping, database and word processing programs — runs on Intel Corp. I486-compatible PCs with CD-ROM drives.



City planners in Atlanta *can use MapInfo's EZ Maps to target federal funds to the neediest neighborhoods*

Local officials will also use the MapInfo-based applications, called EZ Maps and EZ charts, to prepare their grant proposals and reports and then send them on disk to one of HUD's 42 regional offices. HUD reviewers will have the same software to help them analyze and manage the grants in a standardized format.

In essence, six documents that were previously submitted to HUD in paper form will be consolidated on the disk.

"The new system will allow community planners to spend less time pushing paper and more time developing effective housing and community development strategies," Cuomo said.

Furthermore, community groups can receive extracts of the spatial databases so they can independently judge whether federal monies are being effectively targeted, he added.

Following a training program, municipalities will begin using the software to submit applications in fiscal 1995, said Howard Glaser, a Cuomo aide.

"We have essentially given them a community planning system that they can use for anything, regardless of HUD," Glaser added.

PCMCIA

CONTINUED FROM PAGE 39

• **CardPower** extends basic power management capabilities to PC Cards. Currently, a PC Card left in a notebook's PCMCIA slot will continue to draw power even if it is not in use. CardPower will minimize this, extending battery life 10% to 15%, SystemSoft claimed.

The three products should hit the market in November.

"When you start to add up how many configurations you need to keep track of — which model notebook you have, which Ethernet configuration, which driver, etc. — it gets ridiculous," said Mike Radigan, program manager at Xerox Corp. in Rochester, N.Y. Radigan said freeing up low memory for his users is also important.

Samuel May, an analyst at The Yankee Group in Boston, agreed. "The market is screaming out for any programs that can improve power management. Whether or not SystemSoft is the product to do it is a business and market question, but I think they have a good shot."

Andrew Prophet, president of AP Research in Cupertino, Calif., said SystemSoft's power management offering was a good interim step, but it would be better to build the power management capability into the basic standard.

SystemSoft, like other BIOS makers, does not sell directly to end users, so it must persuade its current licensees and potential customers to use its new products. Paul Sereiko, director of product marketing, said the three products will be bundled in a PCMCIA Power Pak, which will give OEMs a significant price break over the individual costs of the products.

A little relief

SystemSoft's new PCMCIA products address the big issues with little cards. The products are scheduled to ship later this fall and target hardware OEMs. They can be mixed and matched for user benefit.

Product	Function	Addresses
CardWizard	Provides PCMCIA diagnostics and configuration tips	Configuration difficulties, memory conflicts, driver issues
CardPower	Minimizes power consumption of PC Cards	Constant power usage of PC Cards, battery drain
CardLite	Reduces amount of memory card takes up from 60K to 90K bytes to as little as 15K bytes	Lack of low memory available to users who install PCMCIA cards

Quattro Pro

CONTINUED FROM PAGE 39

dox for Windows, Quattro Pro offers experts and coaches to take first-time users through the application's paces. For example, there are "experts" for automating the budget process and making bullet charts and "what-if" scenarios. The software also includes 28 "coaches" for specific functions.

The product also has QuickTemplates, predefined templates to automate repetitive tasks such as preparing service invoices or accounts payable registers or generating commonly used reports.

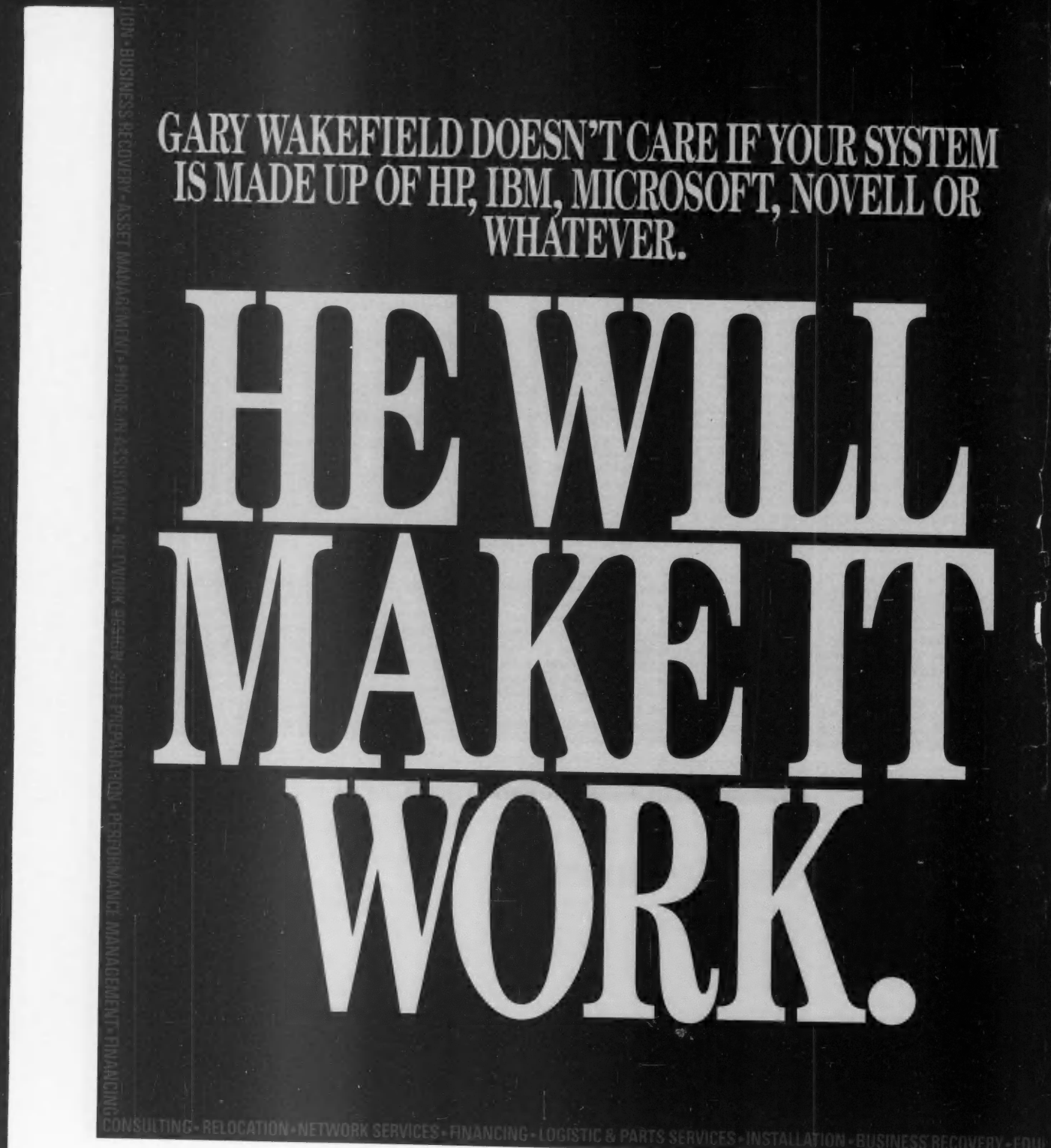
Quattro Pro 6.0 includes new networking features as well. It supports Microsoft's Messaging Application Programming Interface network messaging transport as well as Novell's GroupWise messaging system, previously known as WordPerfect Office.

Still, Quattro Pro's lack of exposure in the suite market is hampering its chances in today's market. For example, Alton Danks, a senior systems manager at a major auto manufacturer in Michigan, said he has beta-tested the new Quattro Pro for Windows and likes it. However, his company has decided to standardize on Microsoft's Office. "Our Quattro Pro users probably won't be using it much longer," Danks said. "We wanted a single-vendor provider and could not wait any longer to see what WordPerfect would roll out with PerfectOffice."

Bob Sherman, a software reviewer at a Santa Clara, Calif., corporation, said he too likes Quattro Pro. But the spreadsheet's fate at his firm also hangs in the balance of an applications suite decision.

"Both Excel and Quattro Pro look good," Sherman said. "I like Quattro Pro because its presentations capability is good enough that it is like having a separate application that operates within the spreadsheet. But our decision really depends on what we think of PerfectOffice."

Quattro Pro 6.0 for Windows has a suggested retail price of $395, and Novell is listing a street price of $239. Current Quattro Pro users can upgrade for $49.95. The company is also offering a competitive trade-up price of $99. PerfectOffice is expected before year's end.



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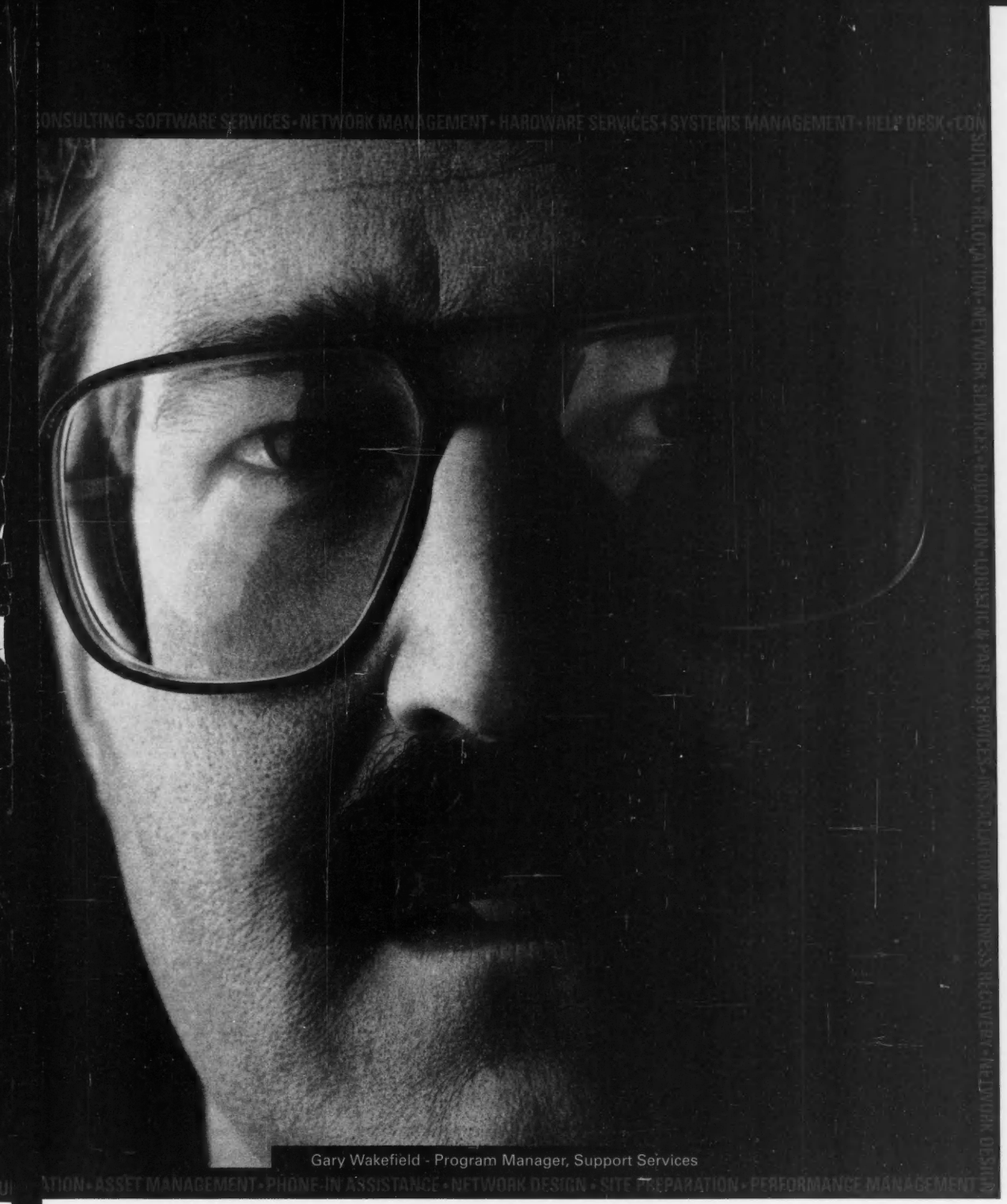

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This handwriting is recognizable

Users say character recognition software works

By Michael Fitzgerald

User disgust with the sloppy state of handwriting recognition may be appeased by Graffiti, a new product from start-up Palm Computing, Inc.

In Graffiti, Palm has come up with what analysts called a fail-safe form of character recognition.

"I can't get anything to recognize my handwriting, but I can use Graffiti and make it work," said Andrew M. Seybold, editor in chief of the "Outlook on Mobile Computing" newsletter in Brookdale, Calif.

Graffiti runs under the Geos operating system from Geoworks, Inc. in Berkeley, Calif., and will run under other pen-oriented operating systems such as Apple Computer, Inc.'s Newt OS and General Magic, Inc.'s Magic CAP. Observers said Graffiti could give a boost to the market for personal digital assistants (PDA).

Martin Reynolds, an analyst at Computer Intelligence/InfoCorp in Santa Clara, Calif., said Graffiti "really fixes the whole input problem for PDAs."

David Britton, group product manager of handheld systems at Microsoft Corp., called Graffiti, "a great idea." He added that handwriting recognition "makes sense for short entries."

To use the Graffiti handwriting recognition software, users must learn several new characters — substitutes for the a, f, k, t and q — and print two letters (y and h) lowercase. The software recognizes all other letters in the Latin alphabet when they are written uppercase.

Gordon Mayer, Geowork's president and chief executive officer, said Graffiti addressed one of the main issues with PDAs: lousy handwriting recognition.

"This works. It's not like a lot of emerging technologies where you squint your eyes and imagine how it will get refined and be OK over time," Mayer said. He has been using Graffiti for more than two months.

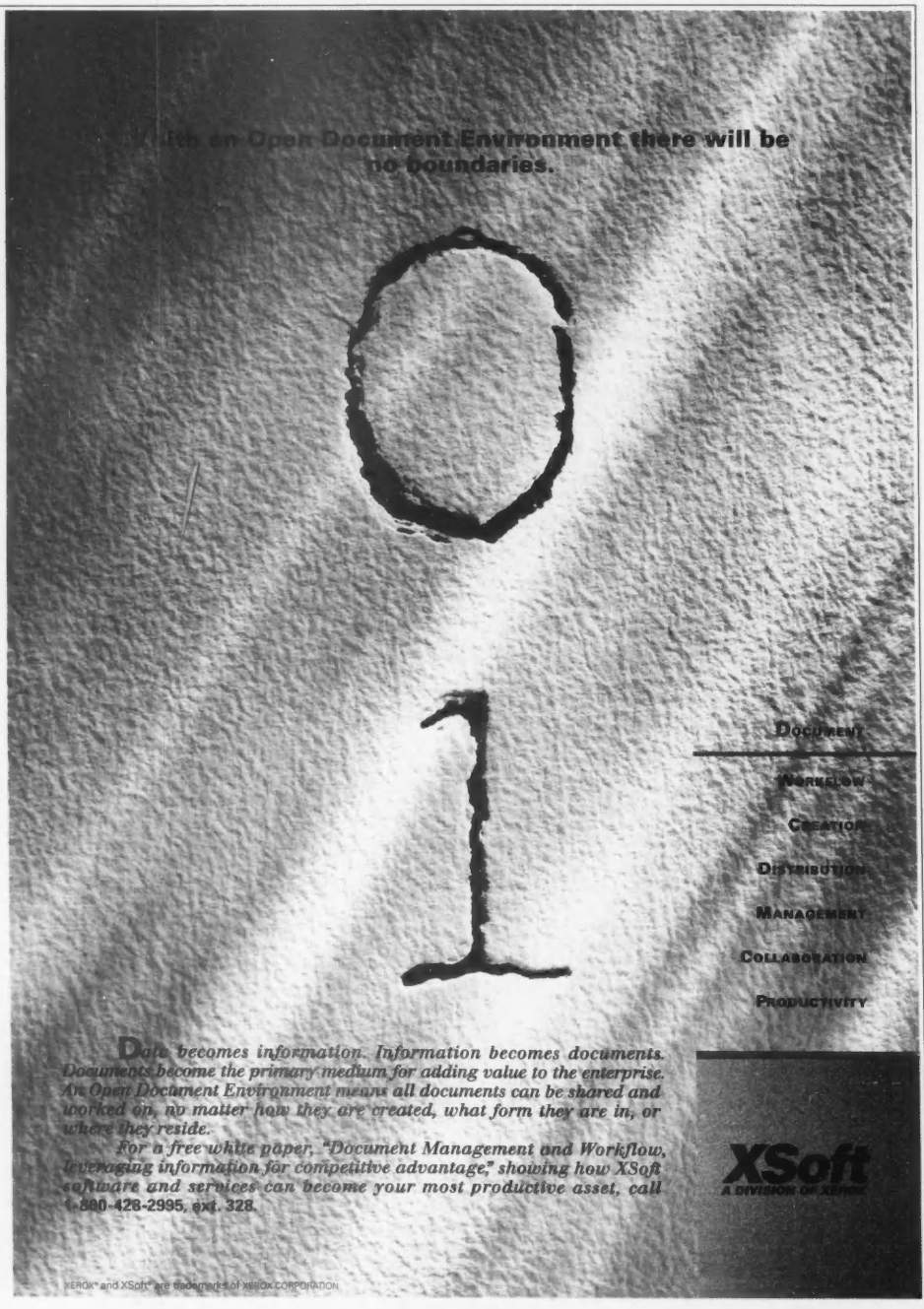
Mayer added, however, that performance issues remain a problem for PDAs. For instance, Tandy Corp.'s Zoomer, which uses Geos, takes five to 10 seconds to switch from one application to another. Mayer said Geoworks will address this with Geos 2.1, now in beta testing and headed for a late October release. Geos 2.1 runs in .5M bytes of RAM, down from 1M byte for 2.0, and uses a new technology to switch applications in less than a second.

Still some analysts were put off by the fact that users have to learn a new alphabet, no matter how familiar.

"It presents the same barrier as people learning to type," said Kimball Brown, an analyst at Dataquest, Inc. in San Jose, Calif. "It's not something you pick up immediately at all."

Because it recognizes characters immediately, Graffiti can operate on a display as small as 1 inch by 1 inch. The product runs in 50K bytes of memory and will sell for $79 as an add-on product.

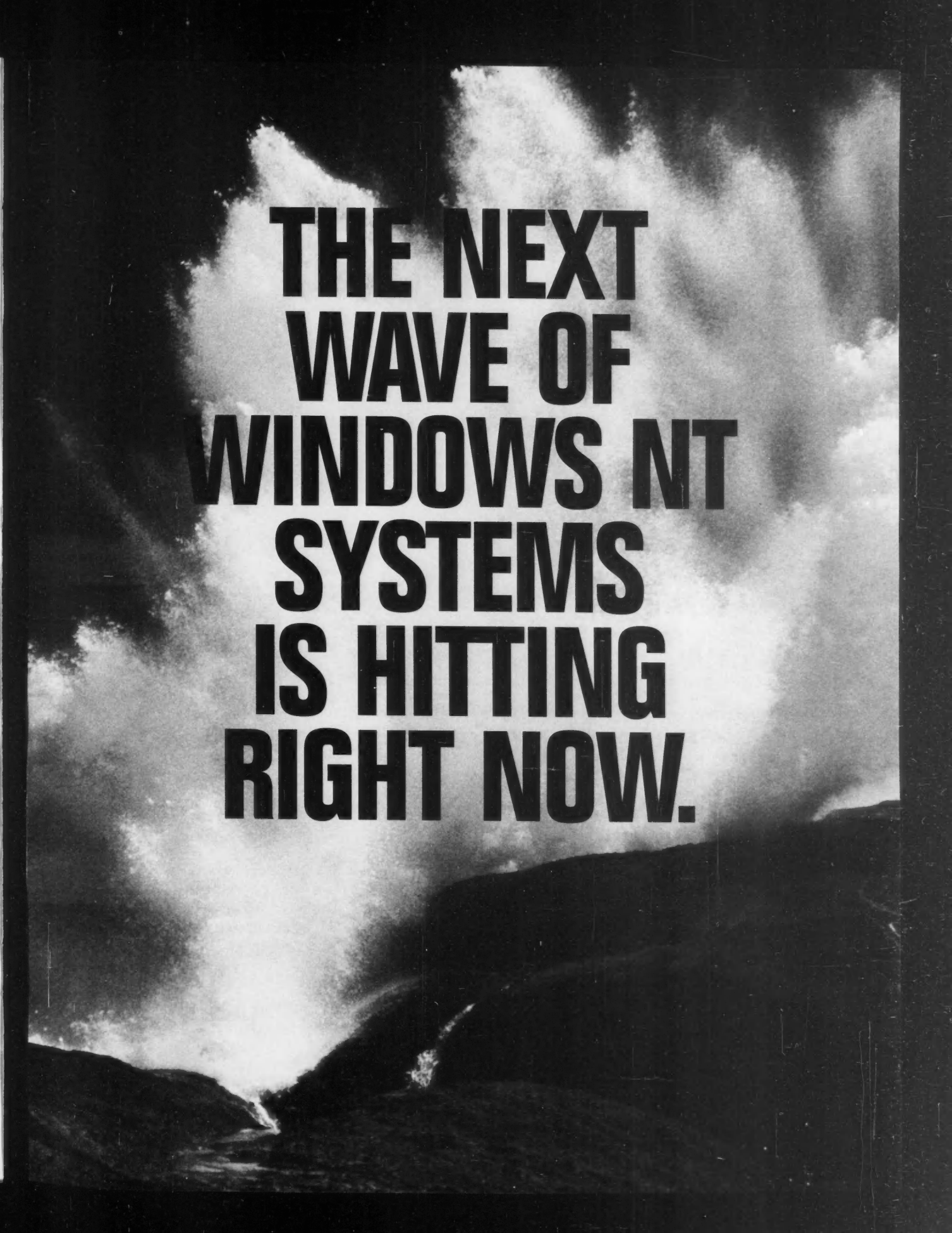
Edward T. Colligan, Palm's vice president of marketing, said Palm has signed a bundling deal with one major hardware maker but declined to specify which one.



Brief

Acer adds models

Acer America Corp. has added six models to its AcerAcros desktop and AcerPower minitower families, including a fully loaded, 60-MHz Pentium system for $1,899, without the monitor.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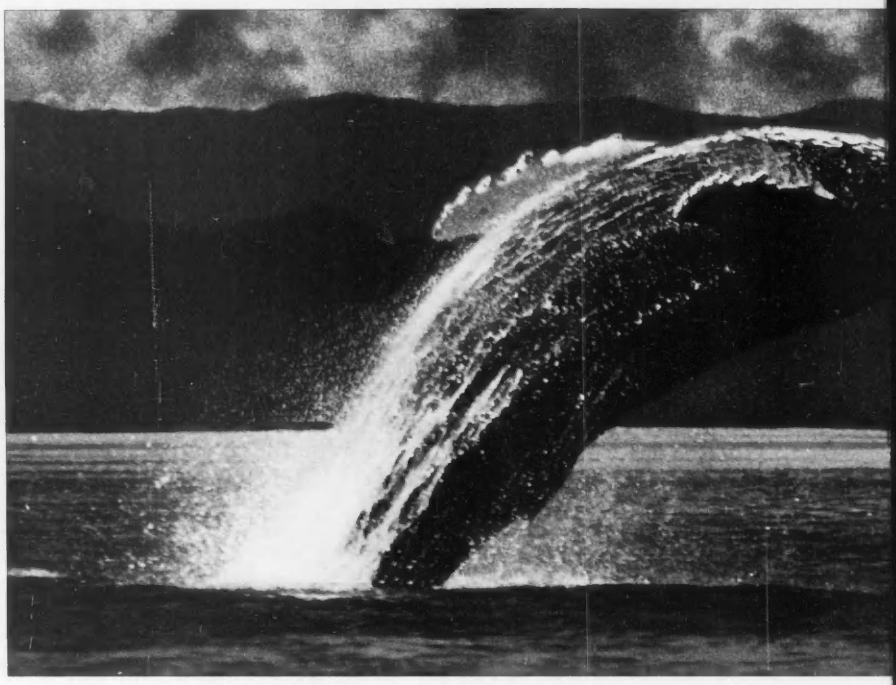

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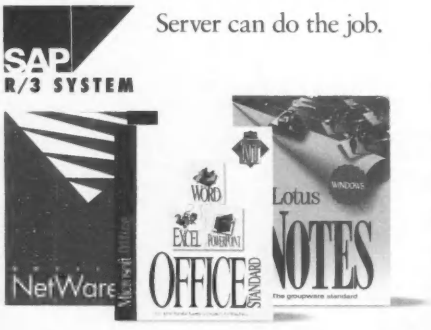

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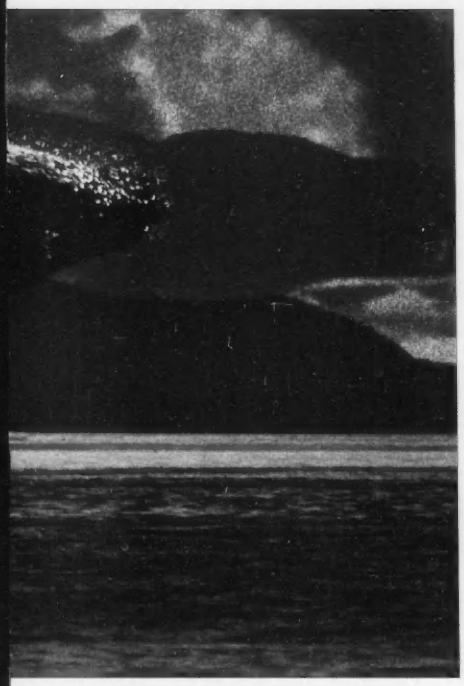
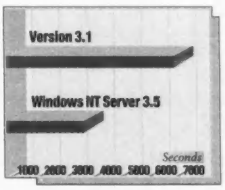


database management, messaging, host access and system management—can seamlessly integrate corporate information with the desktop to radically improve business performance, whether you're an emerging company or already one of the Fortune 500.



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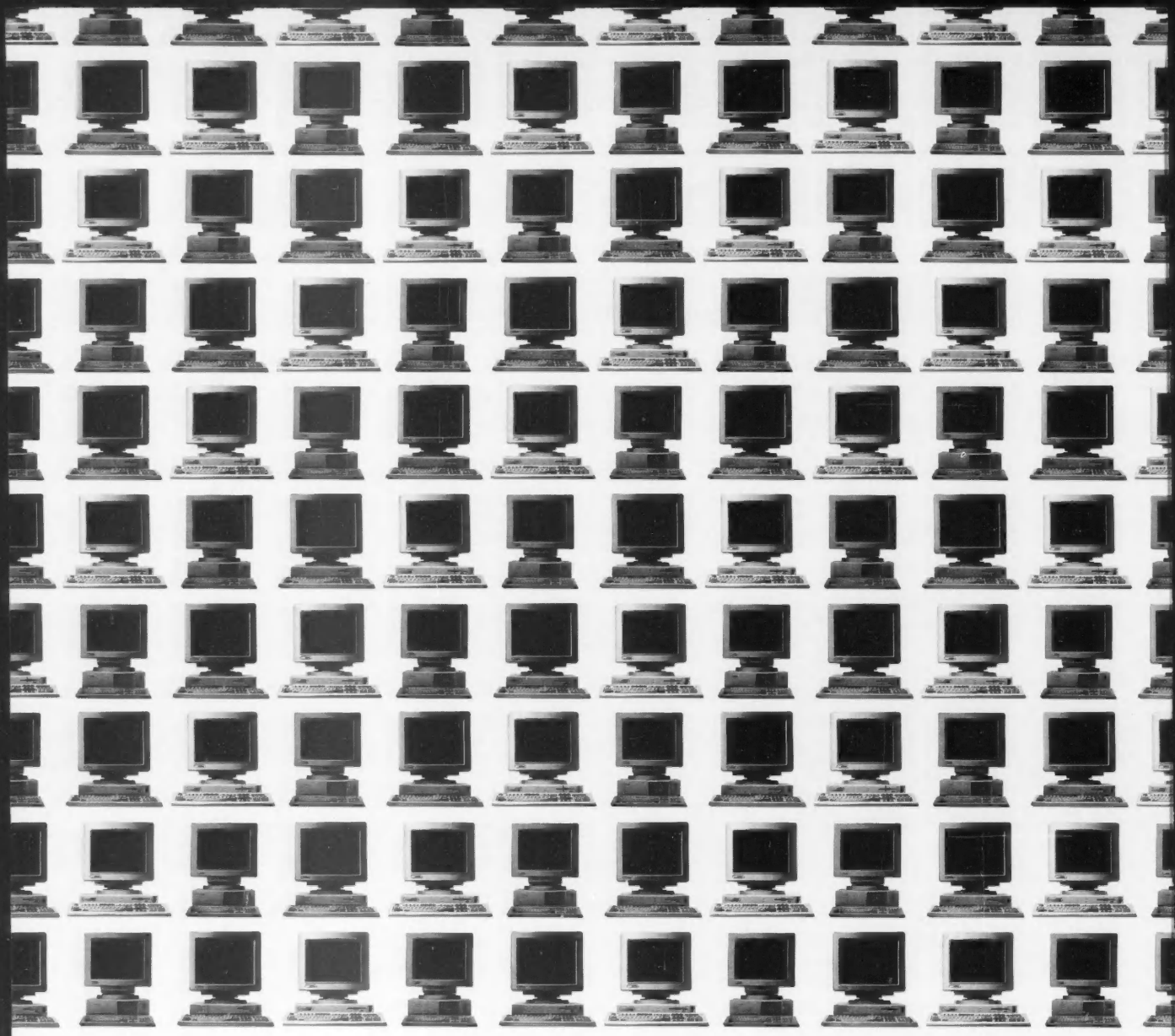

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New Products

Simware, Inc. has announced SimMac 5.0, Macintosh connectivity software.

According to the Ottawa company, SimMac 5.0 provides asynchronous communications for Macintosh-to-3270 host connections.

SimMac 5.0 lets users write Macintosh applications in C or Pascal using SimMac as the communication engine. It provides IndFile transfer capability, supports Apple Computer, Inc.'s Communication Toolbox method and lets users point and click through mainframe applications.

SimMac 5.0 costs $395.

▶ *Simware*
(613) 727-1799

Clearwave Communications, Inc. has announced Intellect, a telephone/PC link that automatically organizes all desktop communications.

According to the Fort Collins, Colo., company, Intellect organizes all incoming and outgoing communications and runs even if the PC is not connected.

A caller identification function captures essential information and automatically loads the contact information into personal information managers, contact managers or database products.

Intellect costs $289.

▶ *Clearwave Communications*
(303) 223-3873

Verbatim Corp. has announced quadruple-speed recordable compact discs known as CD-R.

According to the Charlotte, N.C., company, once a CD-R is recorded using a CD-ROM recording system, it becomes a CD-ROM and can be read by any CD-ROM drive.

The discs were designed for low-volume multimedia replication, service bureaus or software documentation.

Each CD-R costs $24.

▶ *Verbatim*
(704) 547-6500

Development Technologies, Inc. has announced DeskMan/2 1.5, a utilities suite for OS/2.

According to the Forest Acres, S.C., firm, DeskMan/2 lets users create customized desktops and manipulate windows and objects in the Workplace Shell.

Users can password-protect objects, prohibit changes to objects and restrict access to find, sort, arrange, system setup, lockup and shutdown menu items.

DeskMan/2 1.5 costs $79.

▶ *Development Technologies*
(803) 790-9230

Page Works has announced Design Wave, a desktop publishing companion to Adobe Systems, Inc.'s PageMaker and Corel Systems Corp.'s CorelDraw.

According to the Tempe, Ariz., company, Design Wave is a collection of templates, graphics and information that can run simultaneously with both programs.

Design Wave costs $79.

▶ *Page Works*
(602) 345-2339

Extensis Corp. has announced PageTools, a set of 10 additions to Adobe Systems, Inc.'s PageMaker.

According to the Portland, Ore., firm, PageTools, which runs on the Macintosh, can be used to preview files, simplify printing, customize tool bars and zoom in without leaving the current page view.

PageTools costs $99 for a single user or $499 for a five-user pack.

▶ *Extensis*
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The desktops of your enterprise are laden with critical information that can only be described as extremely sensitive. And in all too many instances, wide open.

Unfortunately, until now, installing security on individual workstations has been an extremely expensive and time-consuming task.

The Gartner Group estimates the cost is about sixty dollars a desktop. Even in an enterprise of just twelve hundred PCs, that's a bill of seventy-two thousand dollars.

Once installed, there is no way to measure the efficacy of the security. Enforcing user compliance is difficult at best. Security policies are often ignored. Basic measures like simple password security are notoriously difficult to enforce among your users.

And many security systems are inherently weak. Anyone with a start-up disk can subvert your efforts and walk off with whatever data that strikes their fancy.

Consequently, many MIS and LAN administrators have been forced to adopt a "hope for the best" attitude.

Meanwhile the threat of break-ins, theft and tangible loss escalates at an alarming rate.

At Symantec, we realize that if your network is going to be the backbone of your corporate information infrastructure, if your network is going to be a strategic, competitive weapon, every node on the network must be secure.

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Our new Norton DiskLock Administrator™ is the fastest and most cost-effective way to secure all of your PCs and Macintoshes. Bar none.

Available in versions for both platforms, it lets you deliver and configure DiskLock security on every PC and Macintosh on your network from a central console.

Together, these products form the only centrally distributed and controlled LAN workstation security solution available today.

Norton DiskLock loads before DOS or the Macintosh operating system. So it can't be circumvented by someone walking around with a set of system start-up disks.

DiskLock provides you with virtually unbreachable security with three levels of workstation protection.

Password access to all of your users' desktop computing resources. File locking to conceal and protect confidential files.

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New Norton DiskLock Administrator distributes password access to computing resources, file locking and encryption to every desktop on your network.

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Norton Disklock Administrator lets you quickly distribute DiskLock individually or by departments and workgroups. And configure DiskLock user settings to rigidly enforce your internal security procedures and ensure complete user compliance.

Users can be compelled to use passwords to access their machines. You can specify the minimum length of a password.

And you can ensure your users change their passwords at the times you have prescribed.

Just set up the security program that matches your needs.

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At the same time, users are given the flexibility they need to make sure that your security isn't compromising their ability to get on with their day-to-day jobs.

They can choose which files, directories, disk partitions or folders to lock or encrypt.

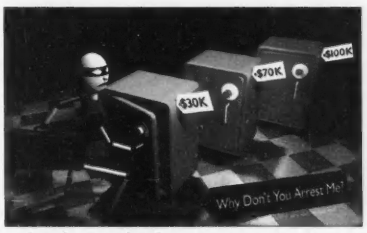
They can assign special access privileges so select co-workers can share their machines.

They can lock their screens when they leave their desk for meetings or other activities.

And they can monitor their machines for any unauthorized access attempts.

Once DiskLock is distributed, DiskLock Administrator generates an audit log into a central database so you can view, chart and print a record of every single desktop accessed, when it was accessed and whom it was accessed by.

If someone attempts to gain unauthorized access to your network, you'll know it.



A single security breach can cost your company in excess of $100,000. One in every four U.S. companies in a study conducted by Ernst & Young in 1993 reported such a costly security breach had already happened in their firm.

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DiskLock Administrator for PCs is one of our Norton Network Series products. Which means it will be fully integrated with our Norton Administrator for Networks™ and our other Norton Network Series network management products.

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So a new inventory report announcing the addition of two new workstations on the LAN will automatically trigger the necessary security distribution.

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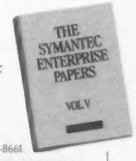

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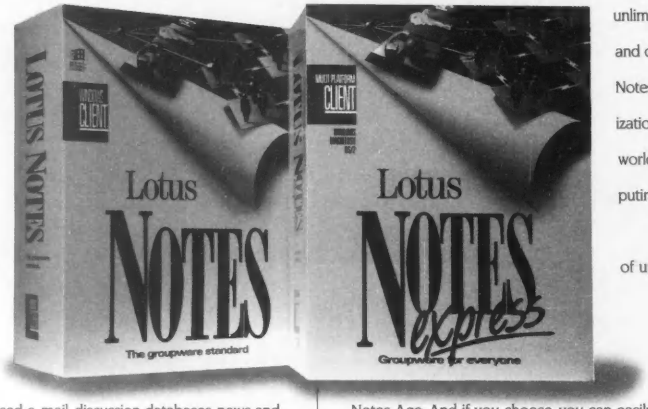

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HP moves to link mainframes to Unix

By Jean S. Bozman
PALO ALTO, CALIF.

Hewlett-Packard Co.'s new software bridge between the IBM mainframe's CICS applications and Unix computers may help users who do not want to slam the door on the corporate mainframe when they rewrite legacy applications for Unix servers.

The CICS for HP 9000 software, announced last week, gives users access to data or other applications that remain on the mainframe, HP said. Industry analysts said the package also addresses a coexistence strategy for users building Unix systems for business units that surround mainframe data centers.

Called CICS/9000, the transaction processing software package was developed with IBM at its CICS facility in Hursley, England. It is nearly identical to IBM's own CICS/6000 for IBM RS/6000 Unix servers, which HP licensed for the CICS/9000, analysts said. However, analysts said they believe HP took steps to boost the performance of the original version of the CICS/6000 client/server software.

Bridging the gap
HP said its CICS/9000 monitor has the potential to bridge the gap between mainframes and distributed Unix systems because CICS is the primary transaction monitor for IBM mainframes.

HP's CICS monitor supports two-phase commit updates between the Unix machines and the IBM mainframe. It can be used in place of HP's Encina/9000 transaction processing monitor announced in January [CW, Jan. 31]. HP's CICS monitor will ship immediately at prices ranging from $9,800 to $89,000 for servers. Client copies cost $150 each.

HP's advantage

Both the IBM and HP CICS transaction processing monitors are built on top of the same Encina server software from Transarc Corp., analysts said. Both have hooks into the original IBM CICS for mainframes, but HP plans to position its CICS/9000 package as part of its mainframe-alternative strategy. This lets IBM mainframes coexist with Unix servers and lets either machine update the other in real time.

"It's an attempt to provide the investment protection that the customer has in CICS," said Jim Brennan, senior director of syndicated services at WorkGroup Technologies, Inc. in Hampton, N.H. "It could be that you use CICS to off-load the mainframe [data] to the HP server and do the work there." Other scenarios include sending real-time updates between the IBM DB2 or IBM IMS databases on the mainframe and the Unix server's relational databases, he said.

At least one early CICS/9000 user is impressed by the product's potential but has not yet deployed it in production applications. "We have this large legacy system we are trying to rehost," said Alfonso Rodriguez, an advisory engineer at MCI Telecommunications Corp. in Arlington, Va. "But this system will still have a lot of interfaces with other systems that will remain on the mainframe."

After evaluating several transaction processing monitors for the firm's HP servers, including Novell, Inc.'s Tuxedo, the MCI site is leaning toward CICS/9000 to take advantage of CICS expertise within the company, Rodriguez said.

"The people who are going to be doing the day-to-day operations are [already] used to it," he said. "If we change the [transaction processing] monitor on them, they are going to have a very difficult time learning the environment and controlling it."

Future products

Workflow market matures

Imaging expo showcases software packages, storage systems

By Thomas Hoffman and Ellis Booker
NEW YORK

More than 12,000 attendees jammed last month's Document Management & Imaging Expo held here, drawn by advances in workflow software packages, high-density storage devices and hybrid systems.

While no single technology dominated the show, the refinement of the workflow and storage systems showcased here provided ample evidence of this industry's continued maturation.

For example, Diamond Head Software, Inc. in Honolulu announced plans to integrate its ImageBasic 2.0 development environment with Borland International, Inc.'s dBase for Windows, Gupta Corp.'s SQL Windows and Lotus Development Corp.'s Notes groupware packages this fall. ImageBasic 2.0 is a document imaging tool kit that allows users to create customized imaging applications using Microsoft Corp.'s Visual Basic environment.

Sigma also announced a partnership with Computer Sciences Corp. under which CSC Consulting Group will provide systems integration and consulting work.

On the rise

Other significant product announcements made at the show include the following:

- Optika Imaging Systems, Inc. in Colorado Springs introduced the latest release of Frequent Filer, an entry-level, $600-per-seat imaging system developed by Teamworks Technologies, Inc., which Optika acquired in January. Frequent Filer Version 3.0 offers multiple page display, annotation, built-in optical character recognition and an optional full-text retrieval engine.

The product works with several SQL database servers. Optika will continue to market its MultiFiler/Finder document management system for more complex environments. The latest version of Frequent Filer will be available next month. Current users can receive free upgrades from resellers.

- Watermark Software, Inc. in Burlington, Mass., has bundled its Professional Edition software with Fujitsu America, Inc.'s ScanPartner Jr. optical scanners. The software/hardware package costs $599 or $699 with a SCSI connection kit.
- TDK Electronics Corp. in Port Washington, N.Y., has added two new rewritable magneto-optical discs to its line. The MO-R230 is a 3½-in. disc with 240M bytes of storage, while the MO-R650 is a 5¼-in. disc with 650M bytes of storage.
- Datacap, Inc. in Tarrytown, N.Y., introduced Task Master, a new workflow software package that combines tasks such as scanning, recognition and verification into a computer-aided data entry system. Task Master, which is optimized to run on Novell, Inc. NetWare networks, will begin shipping this fall. Prices will range from $995 for a single-user system to $24,995 for unrestricted use on a single server.
- ZyLab Corp. in Gaithersburg, Md., introduced ZyImage 3.0, a Windows-based text retrieval/imaging software package that runs with Meridian Data, Inc.'s P-Scribe and NetScribe CD Publishing systems.
- Sigma Imaging Systems, Inc. demonstrated its new OmniDesk Home Workstation, a telecommuting product that takes advantage of the high bandwidth of Integrated Services Digital Network phone lines. Sigma also announced a technology partnership with Computer Sciences Corp. under which that company's subsidiary CSC Consulting Group will provide systems integration and consulting work for Sigma's OmniDesk imaging and workflow products.
- Ramsey, N.J.-based Minolta Corp.'s Document Imaging Systems division announced Version 2.5 of MI3MS 3000, its client/server-based electronic image management system. The Windows 3.1-based software, which begins shipping in November, includes Advanced Optical Services, a series of Novell NetWare Loadable Modules that provide multithreading/multitasking processing capabilities such as simultaneous magnetic and optical disc caching.

Kodak casts new image

Eastman Kodak Co. made its triumphant return to the image processing industry with its announcement of three new systems at the Association of Records Managers & Administrators conference in Toronto late last month.

A few years ago, Kodak stepped out of the systems business to focus on imaging peripherals such as scanners and optical jukeboxes as well as OEM imaging software for companies such as Lotus and Novell.

Kodak's new Imagelink systems include Imagelink Business Solutions/PCplus, a Windows-based departmental system for up to 30 desktop users who need access to images stored on microfilm, disks or CDs; Imagelink Request Processor, Mod PC, which integrates film and electronic databases with a company's existing databases and applications; and Imagelink Application Services for PC LANs with CD accessories, which indexes and delivers images from microfilm and coded ASCII data from CDs.

The Mod PC product is available now for $10,000. Imagelink Application Services will be available next year at a starting price of $25,000. Prices for Imagelink Business Solutions/PCplus start at $5,900. The modular software solution will be available later this year, Kodak said.

—Ellis Booker

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Lotus offers management software

By Lynda Radosevich

Users will not have to wait until Lotus Development Corp. ships Notes Version 4 next year to get some of the management capabilities the product sorely lacks today.

Lotus said it plans to deliver software that lets users centrally manage Notes before it delivers Notes Version 4, which could be delayed until next fall. Such software capabilities were originally promised with Notes 4 when company officials previewed the product strategy last December.

Many users have put off wide-scale deployment of Notes because they are skeptical about its scalability and manageability, according to Tom Austin, an analyst at Gartner Group, Inc.

Lotus hopes to address that issue with NotesView, its server monitoring and management software that is expected to ship in January.

According to a Lotus official, NotesView will work on OS/2, Microsoft Corp.'s Windows NT, Novell, Inc. NetWare Loadable Modules and Unix servers. The management agents will focus on server status, replication and mail delivery. NotesView will use Notes technology within Notes networks and Simple Network Management Protocol (SNMP) alerts outside Notes networks. It will also include an application programming interface (API) to plug in existing SNMP-based monitoring tools.

NotesView will also include applications that help detect errors and perform trend analyses.

"Notes has grown so quickly that Lotus has been playing catch-up. Remote access and management is a big issue," said Gary Clare, president of the Worldwide Association of Lotus Notes Users and Technologists. The analytical tools will also be helpful, he said.

"The name of the game is predicting when [the Notes servers] will go down rather than reacting," said Clare, who is also director of technology competency at Coopers & Lybrand.

Other new products

Other Notes- and Lotus-related news includes the following:

- Wolf Communications, Inc. said its WorldCom public Notes network service is now connected to the World-Wide Web. That means Notes users can look at Web documents without leaving the Notes interface, according to the company.
- Brainstorm Technologies, Inc. introduced DataLink for Notes, a Windows-based program that helps migrate and synchronize data between Notes and relational databases. The software eliminates the need to build custom data transfer programs using the Notes API.
- Lotus announced it is delivering a CC:Mail pager gateway that lets users send urgent messages of up to 240 characters to alphanumeric pagers. The gateway works over McCaw Cellular, MobileComm, PageMart, PageNet and SkyTel networks.

LAN use low at small firms

By Elizabeth Heichler
LONDON

■ The majority of European businesses with fewer than 100 employees have not yet installed a LAN, according to a large-scale information technology customer survey by market researcher International Data Corp. (IDC).

The survey results indicated a direct correlation between the size of an organization and the likelihood of its having a LAN installed, according to Pim Bilderbeek, director of IDC's European Network Expertise Center in Amsterdam.

Information was gathered from approximately 8,600 information technology customer sites in the UK, Germany, Italy, Belgium, the Netherlands and Sweden. The results showed that while LANs were installed in 38% of companies with 10 to 19 employees, they were installed in 89% of companies with 1,000 or more employees. "A lot of smaller companies have PCs installed; it's just a question of networking them," Bilderbeek said.

Radically different buying patterns also emerged based on company size, with larger companies opting for Compaq Computer Corp. or IBM file servers and smaller companies selecting hardware from clone vendors, Bilderbeek added.

"Money is a very big issue for smaller companies. They have to have reliable low-cost equipment," Bilderbeek said.

Less than half of companies with 20 to 99 employees had LANs installed, while sites with 100 to 199 employees reported 61% LAN penetration. That rose to 70% for companies with 200 to 499 employees and 78% for companies with 500 to 999 employees.

Despite the high penetration of LANs at larger companies, IDC sees a continuing opportunity for vendors at these sites as they continue to expand their networks. In particular, there is a trend toward linking remote offices into the corporate network, according to Bilderbeek.

Heichler writes for the IDG News Service.

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SMC spreads Unity with workgroup switch

By Tim Ouellette

■ As part of its new Unity product framework, Standard Microsystems Corp. (SMC) has introduced TigerSwitch XE, an intelligent Ethernet workgroup switch with an aggressive price point of $394 per port.

TigerSwitch XE has a dual-RISC architecture that provides bandwidth acceleration. Each of its 24 ports creates an independent Ethernet segment with 10M bit/sec. of bandwidth. Users can scale up this bandwidth on one segment to 80M bit/sec. by trunking as many as eight ports together.

Denny Glavin, a senior networking analyst at the Medical Center of Delaware in Newcastle, Del., is a longtime user of SMC's ES/1 LAN backbone switch. He said he plans to use TigerSwitch XE for buildings that are spread out to help departments with servers. Glavin said that if he can "get the TigerSwitch out to individual groups, it can expand our bandwidth more. It doesn't tie up any of my backbone boxes if I can get a smaller switch."

The switch also lets users configure filters for network security, performance and traffic control. "I use the filter feature to limit the number of broadcasts, so we have no more broadcast storms," Glavin said. He added that this is important with the amount of bridging he has in his network.

Facilitating LAN design

The Hauppauge, N.Y., company said Unity will help users address LAN design with product offerings in three layers: desktop LAN access, bandwidth acceleration and internetworking. Charles Robbins, an analyst at the Aberdeen Group in Boston, said the company wants to provide customers with a scalable migration path to move to "fast" Ethernet and Asynchronous Transfer Mode (ATM). "The TigerSwitch is the first step in the process," Robbins said. "It's an engine for those that need it at the workgroup."

The switch lets users configure filters for network security, performance and traffic control.

SMC based the strategy on three premises: LAN switches perform better than routers for building on-premise backbones; a combination of switches and stackable hubs is more scalable than multifunction, chassis-based hubs; and ATM will not be a mainstream technology for two to three years.

SMC's expectations for ATM seem to be confirmed in a recent study by Advantage Business Research, Inc. in which only 14% of the respondents said they expect to have their networks heavily based on ATM technology by the end of 1995. Glavin said his company faces a similar situation. "ATM is way down the road for us," he said. "We have got a lot of bandwidth still that we can play with."

Robbins said SMC decided it needed a more direct presence to sell to enterprise customers. Because SMC's customers have traditionally been small to medium-size companies, Robbins said he expects SMC to build on this base, using the TigerSwitch XE to increase recognition and credibility. Further, because SMC makes its own adapters, the company can leverage its own silicon to create low-cost, high-performance products, he added.

"The pricing is very aggressive; the channels like that," Robbins said. "It will help them move more into the enterprise."

Down the road

SMC PLANS TO INTRODUCE ATM AND "FAST" ETHERNET PRODUCTS OVER THE NEXT YEAR AS PART OF ITS SMC UNITY PRODUCT FRAMEWORK

Date	Products
Q1 1995	• 10M/100M bit/sec. 100Base-TX adapters
Q2 1995	• 10M bit/sec. TigerSwitch with 100M bit/sec. "fast" Ethernet uplink • 10M/100M bit/sec. 100Base-T hub • 10M/100M bit/sec. 100Base-T workgroup switch • Multiport 100M bit/sec. "fast" Ethernet I/O module for ES/1 • 155M bit/sec. ATM adapters
Late 1995	• ATM workgroup switch • ATM Feeder I/O module for Es/1

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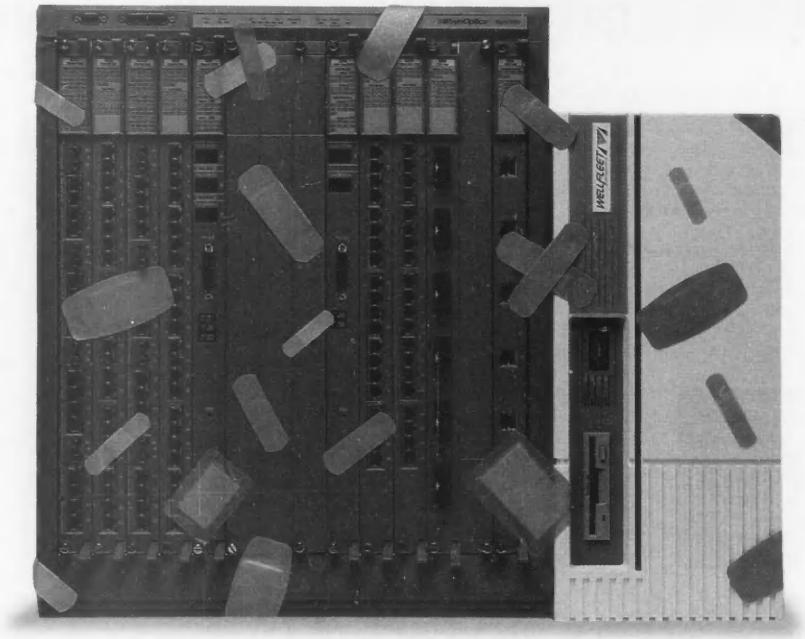

BAND AID SOLUTION

As the networking industry continues to grow, vendors are jockeying for position. Many are slapping together existing technologies in an attempt to keep up with increased customer demands. While this quick-fix solution may work at first, it will prove to be inadequate once ATM and advanced network management services become standardized.

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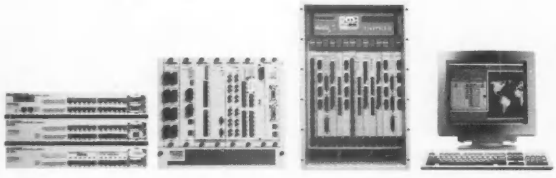

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BANDWIDTH SOLUTION

Locus Computing Corp. has announced Merge 3.2, software that lets DOS and Windows applications run unaltered on Unix systems.

According to the Inglewood, Calif., company, Merge 3.2 supports Windows applications requiring full enhanced mode, lets users cut and paste between Windows and Unix applications and supports Windows applications using the Winsock application programming interface.

Merge 3.2 lets files and peripheral devices be shared among Unix, DOS and Windows processes. The product sets up a virtual machine that allows the direct execution of nonprivileged instructions so applications run at near native speed.

Merge 3.2 runs on Intel Corp.-based Unix systems.

Prices start at $295, bundled in numerous Unix operating systems.

▶ *Locus Computing*
(310) 670-6500

Star Technologies, Inc. has announced Super Star/SDP, a multiprocessor designed around Intel Corp.'s Pentium processor.

According to the Laguna Hills, Calif., company, Super Star/SDP provides mainframe power, connectivity and capacity to the Unix environment.

It was designed for multiuser and multitasking systems and features two external buses, 16M bytes of memory, expandable to 512M bytes, and SCO Unix, MPX/SMP, DOS, Windows and Windows NT support. Prices start at $6,200.

▶ *Star Technologies*
(714) 768-6460

Tektronix, Inc. has announced Phaser 440, a color printer for workgroups.

According to the Wilsonville, Ore., company, Phaser 440 includes a fast print engine and built-in color and image processing hardware. The printer can be shared across Macintosh, PC or Unix platforms. It features dual input trays and standard parallel, serial and Apple Computer, Inc. AppleTalk ports. All ports and Ethernet protocols are active simultaneously.

Adobe System, Inc.'s PostScript Level 2 page description language is incorporated in the hardware.

Phaser 440 costs $7,995.

▶ *Tektronix*
(503) 682-7377

Template Software, Inc. has announced Workflow Template, an object-oriented development environment for enterprise workflow systems.

According to the Herndon, Va., firm, Workflow Template is a set of tools that lets users develop aspects of a workflow system by separating task development, workflow design, work-item definition and application integration.

The product provides management and control in real time and can be integrated with legacy systems, new applications and imaging and document management tools. Workflow Template runs on top of Template Software's SNAP development product.

Workflow Template costs $2,000 per developer.

▶ *Template Software*
(703) 318-1000

Distributed Technologies Corp. has announced Pathtracker 2, client/server asset management software for Novell, Inc. networks.

According to the Waltham, Mass., firm, Pathtracker 2 uses a Digital Equipment Corp. VAX minicomputer server as a database engine to track and manage unlimited PC populations from a single point.

Features include interactive license totals, exception reports, remote Windows-client file access and scheduled batch reports.

Prices range from $495 to $32,500.

▶ *Distributed Technologies*
(617) 684-0060

Product short

Qualix Group, Inc. has introduced UniShield, centralized access security management software for distributed Unix environments. UniShield divides the work load among several servers to support both small- and large-user environments. Cost: Starts at $1,000. Qualix Group, San Mateo, Calif. (415) 572-0200.

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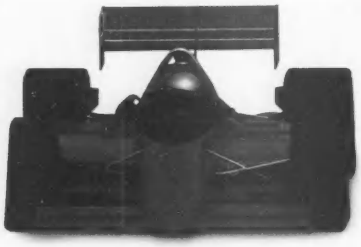

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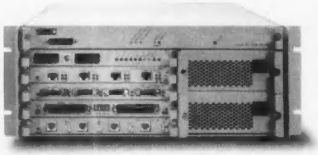

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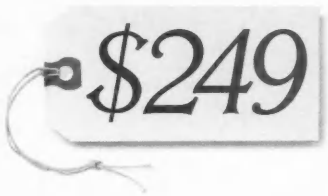

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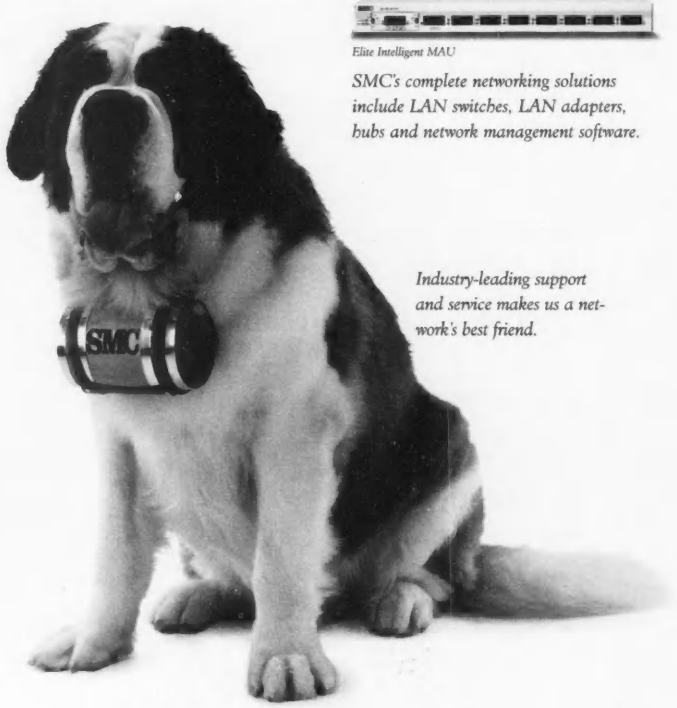

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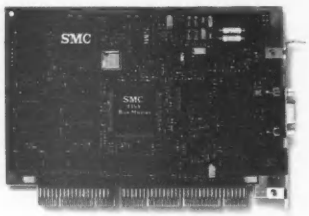

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Inventory management

Comics distributor beefs up network

By Mitch Betts

When avid comic book readers want to catch the next adventures of the X-Men, Batman or Superman, they don't tolerate excuses for why the latest edition is in short supply or why shipment was delayed.

So Diamond Comic Distributors, Inc. in Timonium, Md., has to keep a close eye on inventory to match the supply of hot-selling comic books with local demand. "Our customers [the retail stores] can't wait for the next issues. Hours make a difference," said Bill Larduskey, director of systems development.

To get an up-to-the-minute view of the inventory and its whereabouts, Diamond Comics developed a homegrown inventory system on a Unix processor and a $1 million wide-area network that links 28 distribution centers to headquarters.

Diamond Comics' *new wide-area network helps the company keep a close eye on inventory of hot-selling comic books like the X-Men*

Network basics

The relatively simple architecture includes a centralized network management hub and 56K bit/sec. leased lines to the distribution centers. The distribution centers can look at a single set of inventory data and transfer products from areas with a surplus to areas with a shortage.

Previously, inventory data was held at the distribution centers and uploaded via a dial-up modem to headquarters in batch mode on a weekly basis, so inventory and customer accounts were about a week old, Larduskey said.

An important feature of the new inventory system and network is the ability to accommodate business growth. "Our industry is not growing, but we're growing by acquiring distributors. As we grow, we can add more servers," he explained.

> "Our customers [the retail stores] can't wait for the next issues. Hours make a difference."
>
> *—Bill Larduskey*
> *Director of systems development*
> *Diamond Comic Distributors*

The network was designed by Penril Datability Networks, a network integrator in Gaithersburg, Md., and it uses Penril's Series 6000 network management software. In addition, voice traffic to and from the distribution centers piggybacks on the 56K bit/sec. data network.

Penril's Network Design Service offers to set up networks with a 100% money-back guarantee if the customer is dissatisfied. However, Larduskey said that did not influence his decision to use Penril.

Diamond Comics is the world's largest distributor of comic books, with $220 million in annual revenue. Future plans are for "cracking Europe," where the firm's networking is currently limited to using the Internet, fax and dial-up modem connections, according to Larduskey.

HP bundles protocol support with MPE/IX

By Mark Halper
DENVER

■ Hewlett-Packard Co.'s efforts to open up MPE/IX are expected to make big strides in about six months when the company begins to support some major networking protocols that users have been demanding.

HP plans to bundle TCP/IP connections and enhanced PC connectivity using the ThinLAN/IX protocol into MPE, according to Olivier Helleboid, general manager of HP's commercial systems division.

Helleboid disclosed those intentions in a surprise announcement at the Interex '94 HP users conference in Denver two weeks ago, drawing applause from the audience at an HP 3000 road map session.

"If you don't have the network, you don't have a system," said Tom Idema, manager of business systems development at Fanuc Robotics North America in Auburn Hills, Mich., who praised the announcement of the forthcoming networking features.

Bundling up for fall

TCP/IP and ThinLAN/IX are two of several features that HP currently sells separately but plans to bundle within six months (see chart). In addition, the bundle will include support for a new HP product, Telnet. The host-based product will provide support for terminals across various host-based environments, Helleboid said.

MPE/IX is the proprietary operating system that drives HP's PA-RISC-based HP 3000 minicomputer. Many of the more than 60,000 HP 3000 users are increasingly adding PCs and Unix systems such as the HP 9000 to their shops. As a result, HP has been slowly adding Unix features to MPE/IX.

HP currently charges between $1,000 and $9,625, depending on configuration, for a package that includes TCP/IP, ThinLAN/IX, Berkeley Sockets and other features. It sells File Transfer Protocol (FTP) for $1,250 to $16,000. The FTP and TCP/IP bundle together make up what HP calls its ARPA services package, which sells for the combined price of tne two. The ARPA package is technology derived from standards established by the government's Advanced Re-

HP, *page 74*

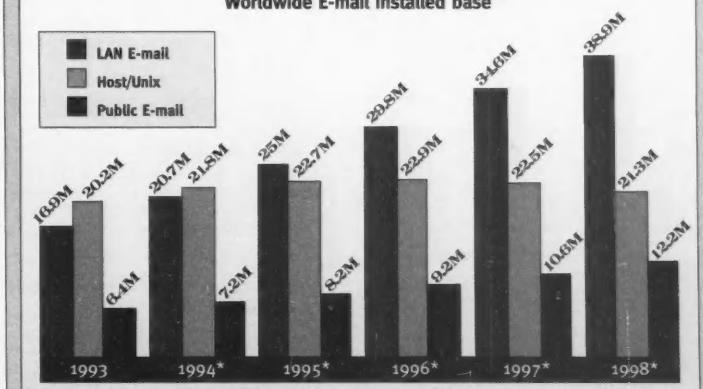
MPE/IX's bundled "open" features

AVAILABLE NOW*	PLANNED SOON**
• Support for IBM SNA/Token Ring	• TCP/IP
• Support for AppleTalk	• ThinLAN/IX
• Posix programmer interface	• File Transfer Protocol
• Posix user interface	• Simple Network Management Protocol
• Support for Microsoft's ODBC	• Berkeley Sockets
	• Host-based Telnet
	• Distributed Computing Environment

*These features are in MPE/IX 5.0, which is shipping in preliminary form. The general release has been delayed until early next year.
**All are options now except for Telnet and DCE.

Data View

Worldwide E-mail installed base



*Projected

Source: BIS Strategic Decisions, Norwell, Mass.

Prodigy joins Internet party

By Ellis Booker

Widely viewed as the laggard among public on-line network providers for Internet connectivity, Prodigy Services Co. recently announced the addition of Internet Usenet news groups to its network.

The company also plans to create a separate World-Wide Web server for business users this month. Prodigy rolled out Internet electronic-mail access earlier this year.

Noting that competitors America Online, Inc. in Vienna, Va., and CompuServe Information Services, Inc. in Columbus, Ohio, already provide Usenet access, Prodigy officials said they have worked to simplify the searching and posting of Usenet messages.

Advanced functions in the Prodigy environment will allow users to exclude articles posted by specified IDs, clip selected text within a response and create a personal "signature" file for salutations.

Prices for Usenet access will be $3.60 per hour, Prodigy said. But Prodigy, CompuServe and America Online all face serious price differentials when it comes to the Internet, analysts said.

"It's impossible for the national services to compete on price with Internet account providers," said Daniel Dern, an Internet analyst in Boston and author of The Internet Guide for New Users. Some providers offer Internet accounts for as little as $10 to $40 per month, he said.

Dern did praise Prodigy's decision to offer all the Usenet newsgroups and to control access by underage users via a new parental access control.

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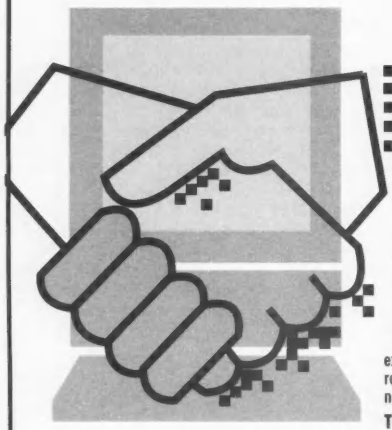

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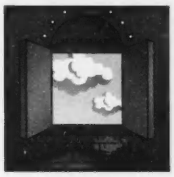
Internet access a top priority

By Suruchi Mohan
ATLANTA

The recent burst of activity on the Internet was in evidence everywhere at the Networld/Interop '94 conference here recently, with vendors falling over one another to provide Internet access either directly or through TCP/IP.

Announcements from Citrix Systems, Inc. and Firefox, Inc. were designed to give desktop users easy access to the Internet without much configuration and provide network administrators with easily manageable and controllable products.



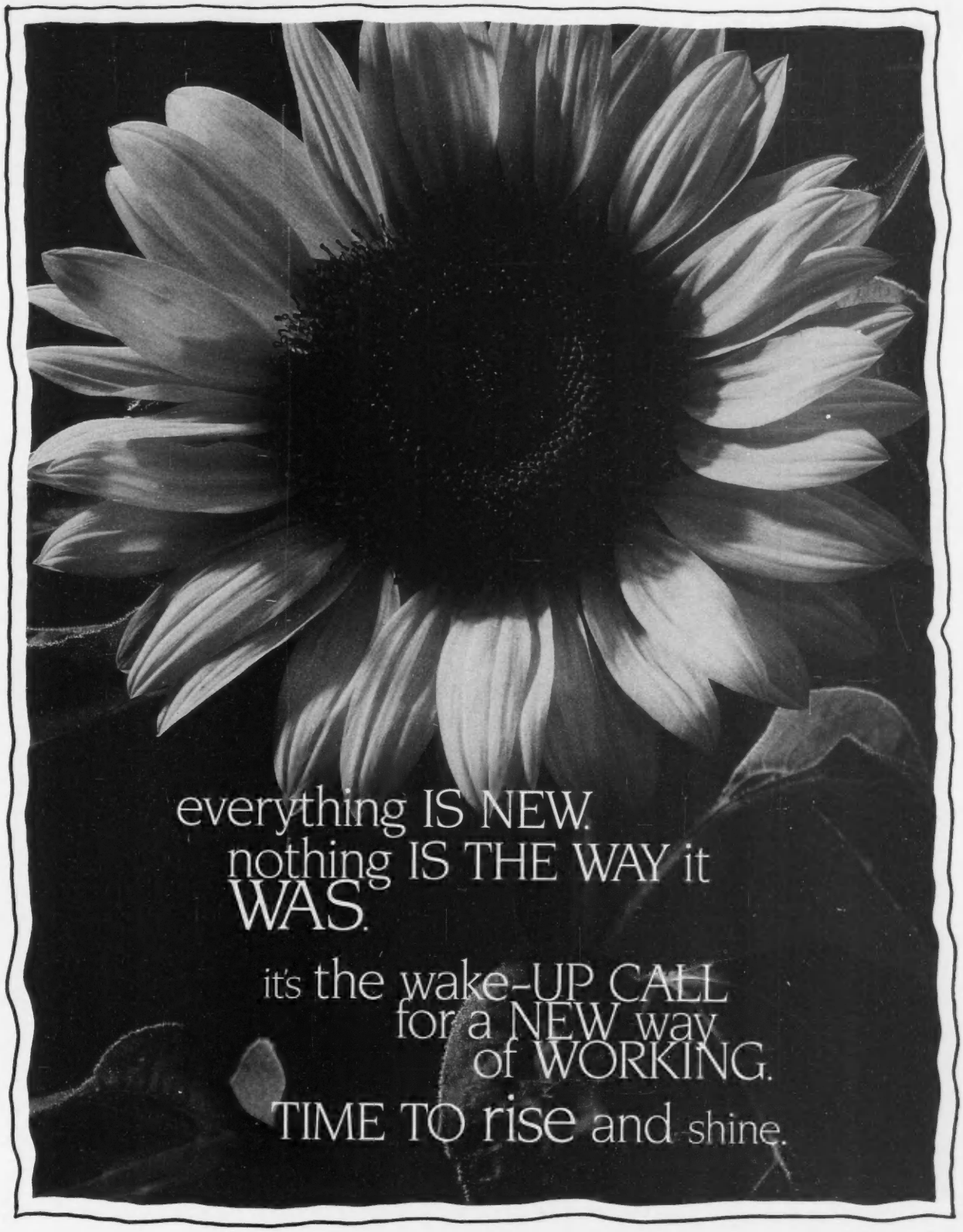
Internet steering wheel

"There is a lot of focus on navigating the Internet," said Michael Goulde, a senior consultant at Patricia Seybold Group in Boston. Users need a way to organize all the information on the Internet, he said.

Coral Springs, Fla.-based Citrix unveiled its TCP/IP for WinView 1.0 and, in partnership with FTP Software, Inc., the WinView for Networks 2.3 application server. TCP/IP for WinView is an add-on to the application server. Windows and character-based applications run on the application server, so end users do not need a powerful PC. Only the keystrokes are sent over the network to the client.

Citrix gives firms that want to do commerce over the Internet a way to adapt applications for Internet use, said Michael Heylin, a senior associate at Creative Strategies Research International, Inc. in San Francisco.

Firefox has also taken the server approach with its Novix for Internet. This NetWare Loadable Module essentially lets users in a NetWare environment access the Internet without having to load additional TCP/IP software on their PCs. The server, which acts as a gateway to the Internet, handles the translation. The server puts an Internet Protocol header on a client's IPX message before sending it off to the Internet.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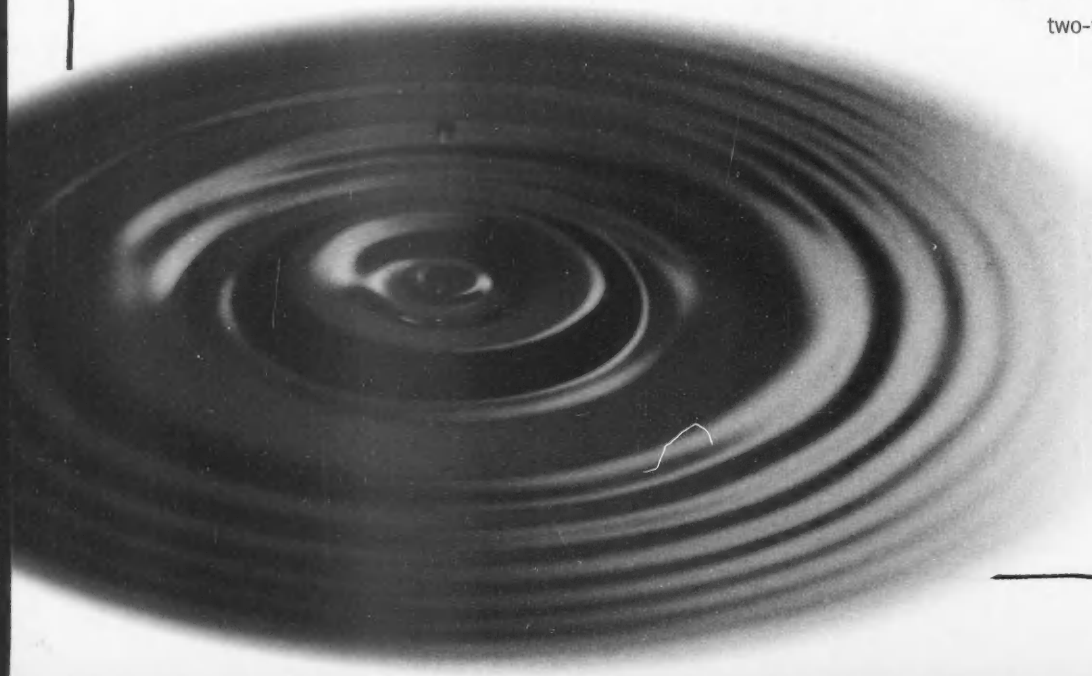

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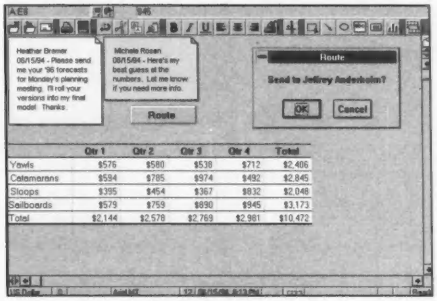

1-2-3's Range Routing lets you share data with colleagues—sequentially or all at once—collecting their comments and input into a single document.

Plus, unlike other spreadsheets, 1-2-3 can designate particular ranges for comment or review by particular users, rather than routing the entire worksheet. Range Routing lets you mail the spreadsheet range to workgroup members for input, track progress, then roll everyone's ideas back into your file, complete with comments and changes tracked as versions.

1-2-3 Release 5 worksheets and ranges can be routed using either VIM or MAPI based e-mail and can be routed either serially or in parallel.

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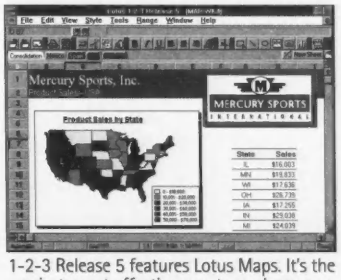

1-2-3 Release 5 features Lotus Maps. It's the easiest, most effective way to analyze your spreadsheet data geographically.

Taken all together, the new 1-2-3 is loaded with enhancements that make getting the job done a whole lot easier—alone or in a workgroup. And 1-2-3 Release 5 gives you the best compatibility with 1-2-3 for DOS of any spreadsheet. To learn more about 1-2-3 Release 5, visit your Lotus Authorized Reseller or call **1-800-TRADE-UP, ext. A250*** for a free demo disk. A 1-2-3 upgrade costs $119.**

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1-2-3 Release 5 is packed with new features like SmartMasters spreadsheets templates, Lotus Maps for geographic visuals of data, Smart Assistants to guide you, seamless integration with Approach database, Range Routing for mailing spreadsheet ranges, OLE 2.0 Drag-and-Drop, and, of course, Lotus Notes Integration.

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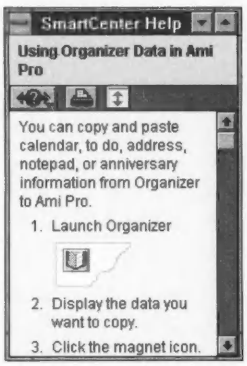

Help Card, one of SmartSuite's powerful help tools, guides you through cross-application tasks.

Freelance Graphics® 2.1 features task and industry specific SmartMasters, a unique 3-step process to create presentations, charting and drawing, presentation management and improved import/export capabilities.

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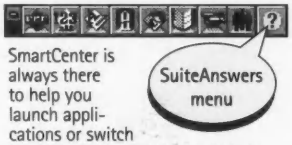

SmartCenter is always there to help you launch applications or switch between them. And Bubble Help is right there for you-all you do is point.

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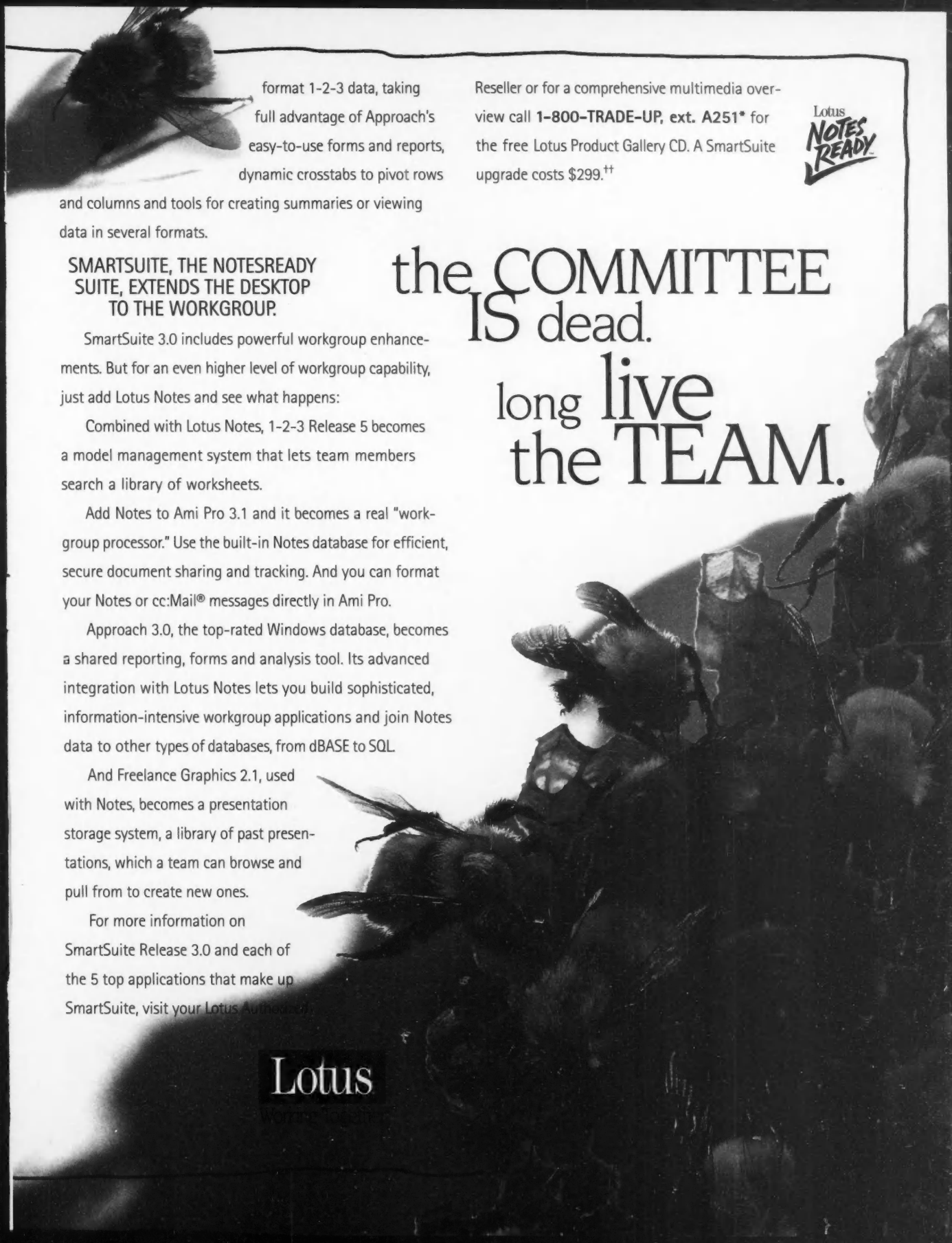

format 1-2-3 data, taking full advantage of Approach's easy-to-use forms and reports, dynamic crosstabs to pivot rows and columns and tools for creating summaries or viewing data in several formats.

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For more information on SmartSuite Release 3.0 and each of the 5 top applications that make up SmartSuite, visit your Lotus Authorized

the COMMITTEE IS dead. long live the TEAM.

Lotus

SMARTSUITE 3.0

SmartCenter
(to move between applications)

SmartMasters
(for predesigned templates)

Fast Format
(apply styles throughout documents)

ScreenCam
(to put your ideas in motion)

Smart Assistants
(to guide you)

Configurable Single Install
(for easy one-step installation)

Small Footprint On Your PC
(the most efficient suite available)

1-2-3/Approach Integration
(database power in your spreadsheet)

Lotus NOTES READY™

1-2-3 RELEASE 5 SPREADSHEET

SmartMasters
(useful predesigned templates)

Lotus Maps
(geographic visuals of data)

Lotus Approach Integration
(for extra database power)

Smart Assistants
(to guide you)

Range Routing
(for mailing spreadsheet ranges)

Direct Access To Database Files
(open dBASE and Paradox® files directly into 1-2-3)

OLE 2.0 Drag-And-Drop
(move or copy data, with visual mouse cues)

APPROACH 3.0 DATABASE

PowerClick Reportwriter
(for wysiwyg design)

Smart Assistants
(to guide you)

InfoBox
(instant on-screen manipulation)

X10 Speed Architecture
(for blazing speed)

Lotus 1-2-3 Integration
(for working with 1-2-3)

PowerKey™ Technology
(for direct access to existing data)

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The new SmartSuite 3.0. Featuring major new releases of 1-2-3, Ami Pro, Approach database and Freelance Graphics—plus the popular and powerful personal information manager Organizer—this is the ultimate integration of your most important desktop tools. For more information on SmartSuite Release 3.0 and each of the 5 top applications that make up SmartSuite, visit your Lotus Authorized Reseller or for a comprehensive multimedia overview call **1-800-TRADE-UP, ext. A251*** for the free Lotus Product Gallery CD. A SmartSuite upgrade costs $299.††

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New setback for encryption scheme

By Gary H. Anthes
WASHINGTON

The Office of Technology Assessment (OTA) recently suggested that Congress consider putting further deployment of key-escrow encryption on hold while it develops a "more open process to determine how cryptography will be deployed throughout society."

Widespread deployment of cryptography requires the solution of difficult issues but is becoming increasingly necessary to support electronic commerce, copyright management and electronic delivery of government services, the OTA said.

EES at a glance

- Approved last February by the U.S. Commerce Department as a federal information processing standard. Intended for voluntary use to protect sensitive but unclassified information in voice, fax and data communications over ordinary telephone lines.
- Specifies Skipjack, a secret hardware-based encryption algorithm developed in the 1980s by the NSA. An early implementation was called "Clipper."
- Skipjack is said to be considerably harder to break than the government's widely used but aging Data Encryption Standard algorithm.

"Information Security and Privacy in Network Environments," a report from the nonpartisan congressional think tank, criticizes the Clinton administration for allowing the National Security Agency (NSA) to assume "much more" authority for civilian computer security than Congress intended when it passed the Computer Security Act of 1987.

The NSA has vigorously pushed the controversial "Clipper" approach to key-escrow encryption, now embodied in a federal information processing standard called the Escrowed Encryption Standard (EES). The Clipper chip uses a secret encryption algorithm and two encryption/ decryption keys maintained "in escrow" by separate government agencies. The keys can be used for court-approved wiretaps of encrypted communications.

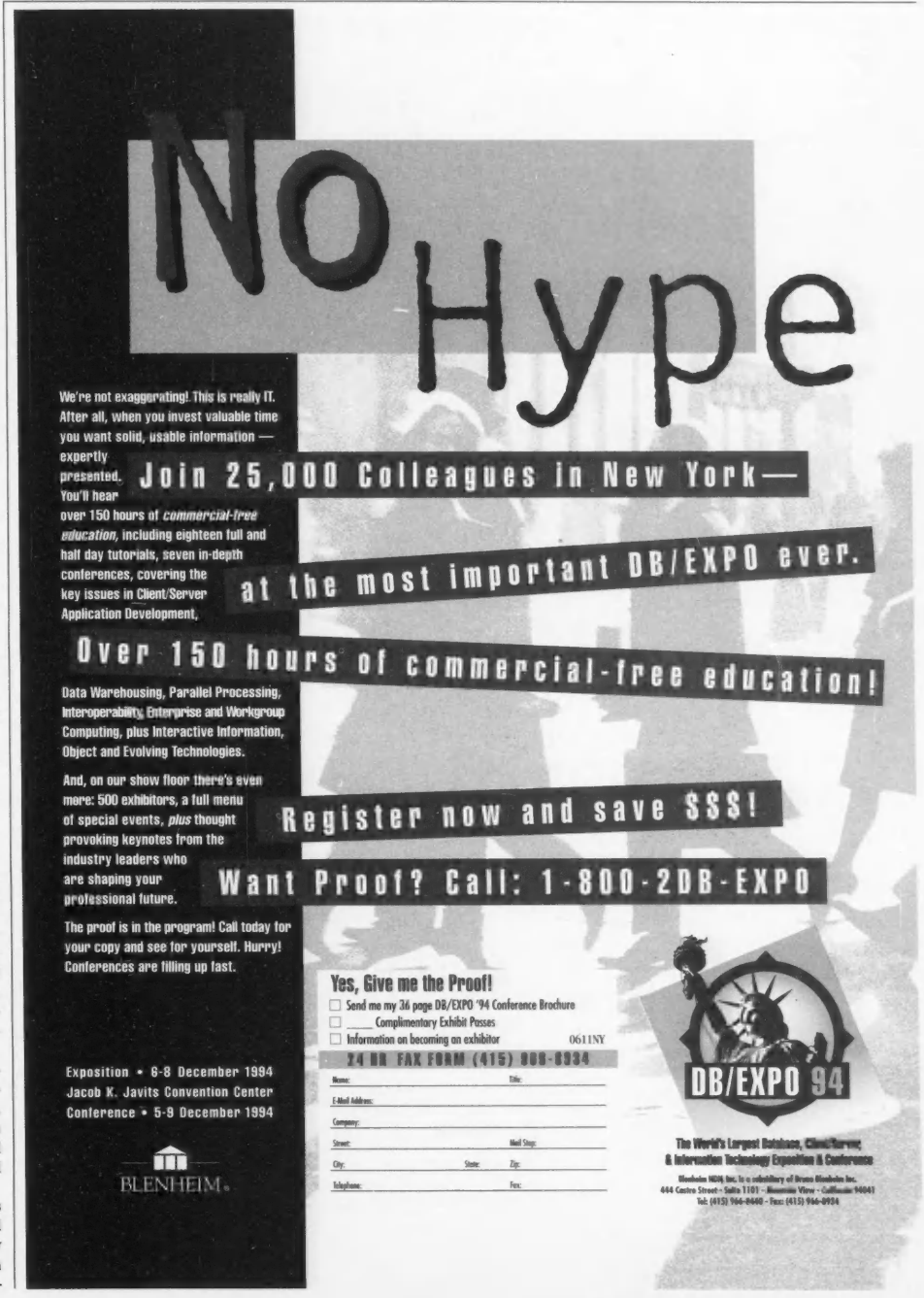
"The process by which EES was selected and approved was closed to those outside the executive branch," the OTA said. "Furthermore, the ... means by which key-escrow encryption is being deployed continue to be developed in a closed forum."

The OTA pointed out that Congress has asked the National Research Council (NRC) to conduct a comprehensive study of cryptography policy to be available in 1996. But, the OTA warned, "if implementation of the EES and related technologies continues at the current pace, key-escrow encryption may already be embedded in information systems before Congress can act on the NRC report."

But some observers said the government can ill afford to put key-escrow encryption on hold. "The government needs to get some new encryption out there, and it is going to suffer for not being able to get security into its systems," said Dorothy E. Denning, chairwoman of the computer science department at Georgetown University.

Denning also said the government needs to get experience with key escrow in order to learn its effectiveness, risks and costs. "The best way to do that is get it out, not to keep it as an abstract concept," she said.

In other areas related to security, the OTA said a number of legal issues need to be resolved before corporations can move to electronic commerce in a serious way. The issues deal with authentication of sources of transactions, assurance that messages are unaltered, prevention of disclosure and verification of receipt.



HP MPE/IX

CONTINUED FROM PAGE 65

search Projects Agency (ARPA).

HP's plans to bundle TCP/IP into MPE/IX mirror a similar move by rival IBM, which already provides TCP/IP as part of the OS/400 operating system for the AS/400. By comparison, Digital Equipment Corp. offers TCP/IP for its OpenVMS as HP does for MPE/IX — as an optional item for sale.

HP's effort to open up MPE/IX has helped assure loyal but at times insecure HP 3000 users that HP remains committed to them and does not plan to abandon its mature product in favor of the rapidly growing HP 9000 Unix system. Users found even more reassurance in the TCP/IP and ThinLAN/IX disclosures.

"TCP/IP already comes with the HP 9000, so bundling it with MPE is showing a commitment to put the 3000 on equal footing," said Frank Kelly, manager of information resources at the Reserve Officers Association of the U.S. in Washington.

Helleboid's news comes on the heels of HP's statement that it will also provide support for the Open Software Foundation's Distributed Computing Environment (DCE) as a patch to MPE/IX 5.0 soon after 5.0's general release early next year [CW, Sept. 12]. That plan augurs improvements in interoperability in mixed environments.

Opening up MPE has had its share of hitches for HP. MPE/IX 5.0 was originally planned for general release last month but ran into technical problems. And Version 4.5 was beset with file retrieval obstacles [CW, April 12, 1993].

Clock is ticking

Helleboid acknowledged that adding the various ARPA features will provide HP with a fair share of challenges. Among them, he said, will be finishing Telnet on time.

Users united

TCP/IP and ThinLAN/IX were high on the wish list that the Interex user group presented to HP, according to Jane Copeland, Interex advocacy committee chairwoman.

For some users who recently purchased some of the forthcoming "free" features, Helleboid's announcement was bittersweet.

"It's great, but it was a little annoying for me because we just paid $12,000," bemoaned Don Gilchrist, who recently retired from the information systems shop at McMaster University in Hamilton, Ontario, after installing TCP/IP in MPE/IX.

HP is offering 50% discounts to purchasers of many of the forthcoming services between now and their inclusion in MPE/IX. That does not include DCE.

Helleboid said HP is not planning any reimbursements for shops such as McMaster University. "Unfortunately, we cannot do much about that," he said.

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Source: Survey of COMPUTERWORLD CD subscribers, May 1993.

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New Product

Engage Communication, Inc. has announced the ExpressRouter line of expandable Ethernet wide-area network routers.

According to the Aptos, Calif., company, ExpressRouter is based on a dual CISC/RISC processor. It supports line rates up to full T1, Point-to-Point Protocol, frame relay, TCP/IP and Apple Computer, Inc.'s AppleTalk LAN protocols.

ExpressRouter is available with one to three serial ports for wide-area connections and comes with EngageView software for local and remote management.

ExpressRouter costs $1,795.

▶ *Engage Communication (408) 688-1021*

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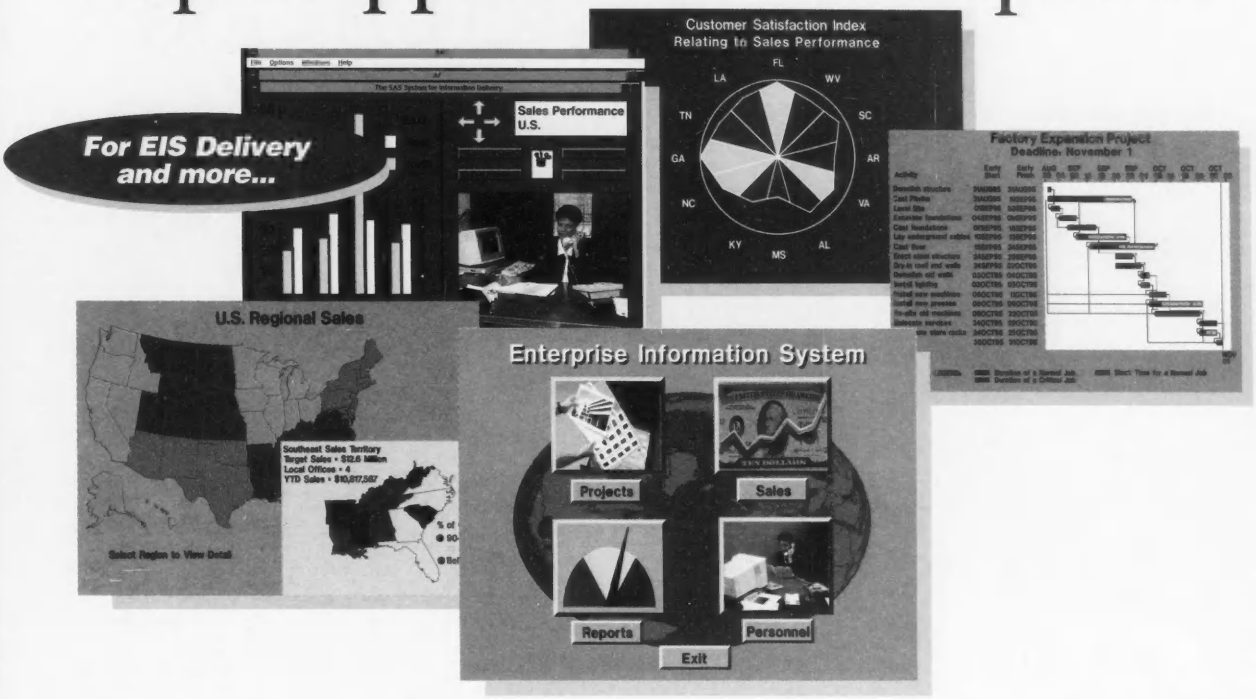

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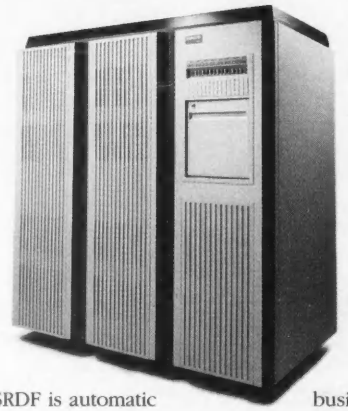

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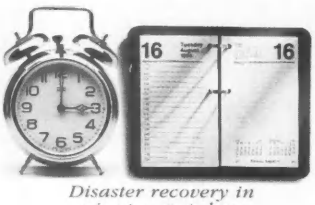

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Amdahl, Sun honor promise with A+

Software extensions 'substantially improve' Solaris performance

By Jean S. Bozman

■ A year after Amdahl Corp. and Sun Microsystems, Inc. agreed to collaborate on a mainframe-strength version of Sun's Solaris Unix operating system, the two firms have delivered on that promise.

They are shipping Solaris software extensions that boost the performance of Sun's high-end symmetrical multiprocessing (SMP) servers. The A+ Edition software package, which became available on CDs last month as an add-on to Solaris 2.3, will be sold by both companies for use with Sun's SPARCserver 1000 and SPARCcenter 2000. A+ will be ported to Solaris 2.4 as that release begins to ship in volume in the coming months.

The problem A+ addresses is a very real one, analysts said. Like many other Unix SMP servers, Sun's largest SMP servers host I/O-intensive processes that can saturate their system buses if tasks are not distributed evenly.

More is less

"There are no data from Sun that show diminishing returns from adding more CPUs, but the advantages decrease as you get to higher numbers of processors," said Tony Iams, a research analyst at D. H. Brown Associates, Inc. in Port Chester, N.Y., who has studied Sun's high-end SMP servers.

In a separate development on SMP efficiency, Sun said last week that it will introduce new clustering software for the SPARCserver 1000 and SPARCcenter 2000. The clustering modules will boost performance for large Oracle Corp. relational database applications accessed by many users. The announcement is set for this week's Unix Expo trade show in New York.

In addition, the A+ Edition software includes features that enhance security and reliability. Some of the enhancements involve management of system locks and memory, as well as the handling of temporary files and error-logging.

Industry analysts said A+ software will boost the ability of Sun servers to "scale up" evenly in power — extending the "sweet spot" of eight to 12 CPUs that some analysts and users reported. In other words, the maximum performance of most high-end Sun servers had not been much more than that found in servers with eight to 12 processors, observers said, regardless of the total number of processors.

Now, however, a 20-processor server performs at full speed and is no longer bound by the 8-to-12 rule. "They said this is a substantial performance improvement from eight processors on," said Terry Bennett, director of technical research at Computer Intelligence/InfoCorp in Beaverton, Ore., referring to analyst briefings by Sun and Amdahl.

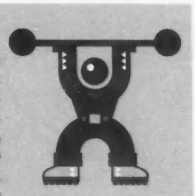
Prices for A+ Edition range from $1,500 to $2,000 per CPU and up to $50,000 for a 20-way Sun SPARCcenter 2000.

Concerns about cost

Solaris customers seem pleased with the high-powered additions. "I think the extensions will help spawn other processes or better distribute the work load," explained Clif Triplett, director of systems design and

Amdahl, Sun, *page 80*

Pumping iron



The A+ Edition is a group of extensions that allow Sun's Solaris to scale more efficiently at the top end of Sun's SMP server family. For example, Amdahl and Sun, co-developers of the extensions, claim that A+ can double the performance of some applications running on a 16-way Sun server. To get there, A+ adds the following:

- Tuning for database applications with a large number of users.
- More even distribution of client requests to the processors in the servers.

Parallel computing

Users check options despite continued Teradata database upgrades, releases

Pricing, new deals complicate choices for future

By Kim S. Nash

If one man's feast is another man's heartburn, then users of Teradata systems — a combination of massively parallel hardware and database software — better pause before sitting down to dinner.

AT&T Corp., which inherited Teradata when it acquired NCR Corp., has dished out more upgrade, migration and new product options to the Teradata user base than ever before. But all those choices have confused some people. Further, several shops are evaluating alternative parallel database offerings from merchants such as Informix Software, Inc. and Oracle Corp.

Sweetening the migration

AT&T last month cut prices 15% to 37% on its System 3600 massively parallel server line, which is positioned as a migration path for Teradata users.

"I don't think there should be panic in anyone's heart today, but users of the bundled Teradata product should be thinking about the future," said David Frankel, director of technology at Smaby Group, Inc., a consulting firm in Minneapolis.

Although they said they have faith that AT&T will continue to support them, users at several Teradata sites have their eyes open for alternatives. Take Bell South Telecommunications, for example. The Birmingham, Ala.-based company put out an exploratory request for proposals for relational databases earlier this year, said Hollis Miller, manager of integrated desktop services.

"At this point, we're doing tests and keeping what we have," Miller said. "But we want to be aware of what's out there."

Continued support

AT&T plans to support Teradata users "for as long as they want it," a spokesman said. In fact, the installed base is growing, if slowly, the spokesman added (see chart).

But some customers said they are confused by AT&T's seemingly divided strategy regarding parallel databases. Although Teradata started off as a black box bundle of proprietary hardware and database, the system is now unbundled. AT&T upgraded Teradata hardware, dubbed DBC/1012, a year ago but is trying to coax Teradata users to its newer System 3600 massively parallel machines.

Further, AT&T has forged relationships with Oracle and other database makers in order to give System 3600 users alternatives to Teradata software.

And, finally, AT&T has teamed with Sybase, Inc. to develop another parallel database product, called Navigation Server, which was designed to turn Sybase's System 10 database into a parallel offering on System 3600.

"It's a lot to think about, even if you're happy with the product," said Tim Caster, a systems programmer at Kansas City Power and Light Co. in Kansas City, Mo.

"That's always a concern — where the vendor plans on going with your product," Caster said. Kansas City Power runs its 500,000-account customer information system on Teradata.

High-priced machine

A key drawback to Teradata is its expense relative to Unix machines, users said. "It's not the cheapest box in the world, although costs are coming down," said Jimmy McCullough, director of marketing technologies at Atlanta-based Delta Air Lines.

"We're anxiously awaiting the 3700 to use as an alternative" to proprietary Teradata hardware, McCullough said. (The 3700 is AT&T's planned follow-on to System 3600 servers.) Delta is among the largest Teradata sites in the world, running 400G to 500G bytes of data on the systems.

Holding pattern

Teradata sales are not burning up the charts now that users have more options for parallel processing databases

	Number of Teradata machines in use	Number of customer sites
1992	332	170
1993	340	180
As of Sept. 1994	346	188

Reporter's Notebook

This year's national **Hewlett-Packard** users' conference had its fair share of announcements, but it may also be remembered for some of its political intrigue.

The **Interex '94** conference, held two weeks ago in Denver, was notable not only for who attended but also for who did not attend and, just as important, for who almost made the trip. Most controversial, perhaps, was the absence of HP Chief Executive Officer Lewis Platt, who appeared on video during the opening day's keynote address.

Platt's absence marks the first time in at least five years that he or his predecessor John Young has not dropped by, according to an Interex spokeswoman. His absence was not overlooked by one user, who publicly asked, "Where's Lew?" at an open microphone session.

Rich Sevcik, the HP executive recently appointed to oversee the company's move to the HP/Intel Corp. post-RISC platform, issued an apology on Platt's behalf. Unfortunately, he explained, Platt had a commitment to attend a directors' meeting in Europe. Platt will be in Toronto for next year's gathering, said Interex advocacy chairwoman Jane Copeland.

Meanwhile, it seems that HP archrival **Digital** almost made it to the rocky mountain HP high in an effort to show users that other Unix solutions exist. According to Kathy Herzog, Interex director of conferences, Digital made a last-minute attempt to reserve a hospitality suite but balked when it was told it also had to reserve floor space. Digital did not return phone calls requesting a comment.

However, one rather significant HP rival did make it to the show floor: **IBM** set up a display to show off its storage offerings. Ironically, the day after the show ended, HP officially launched an aggressive marketing campaign to grab AS/400 customers from IBM [CW, Sept. 26].

For the second year in a row, the show attracted a sizable percentage of Unix attendees and exhibitors. Interex, which was still compiling records last week, estimated that roughly 50% of the 5,000-plus attendees were from Unix or mixed shops. Past conferences have drawn mainly from HP's proprietary MPE crowd, while HP/UX users have shown preferences for Unix industry shows.

And oh, yes, there were products. HP added a top-of-the-line model to its low-end HP 3000 9x8 line. **FileNet** announced an HP 3000 version of its Image Management Services. **Multiview** finally expanded out of the HP 3000 market and said it is offering an HP 9000 version of its financial software. **3K Associates** announced an Internet link for the HP 3000, and **Information Builders** announced access to **Red Brick Systems'** Red Brick Warehouse through its Focus fourth-generation language and Enterprise Data Access/SQL client/server interface.

One other development of note: A snowfall swept into an otherwise pleasant September afternoon in the Mile High City on the conference's third day. It was just two years ago that Hurricane Andrew disrupted conference proceedings in New Orleans. — *Mark Halper*

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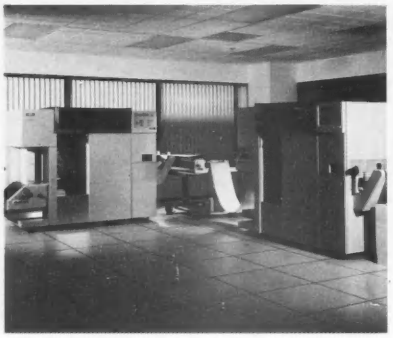
Thinking About Cutting Printing Costs? Think Twice!



If your organization is like most others in the Nineties, you're devoting more than a little time to squeezing as much as you can out of an ever-tightening budget. If you're thinking about cutting costs when it comes to high-performance printing, we have two words of advice...

Think Twice!

Choosing the right high-performance printer can mean the difference between just getting the job done – or getting the job done twice as fast, with significant cost savings. The Twin series of electronic printing systems from Siemens Nixdorf is a unique concept that teams the proven performance of two non-impact LED printers to deliver a new level of quality at up to 300 dots per inch.

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The Twin series features a 17" printline. You can print two full-sized 8 1/2" x 11" duplexed images, two-across. That adds up to twice the productivity and major cost savings.

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Thanks to the Twin's configuration flexibility you can run AFP or non-AFP applications on-line, simplex or duplex, and non-AFP applications simplex or duplex off-line. Each printer can also be operated independently, running AFP or non-AFP, offering even more application flexibility. When it comes to your document processing strategy, a high-performance printing system is an important investment. That's why it pays to think twice. Get the Twin advantage for superior quality, flexibility, cost savings and throughput.

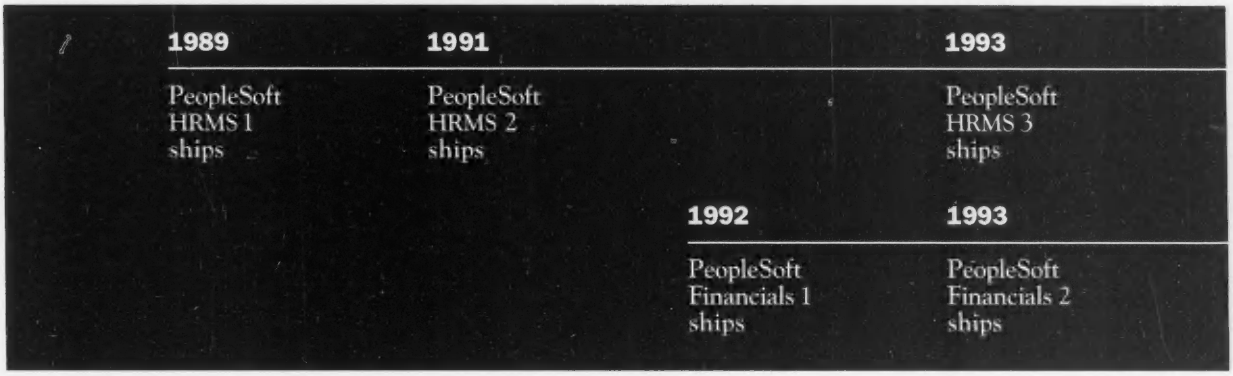
Siemens Nixdorf Printing Systems 1-800-523-5444

Brief

NCube sells to ING

NCube has sold two massively parallel processors to ING Bank in Amsterdam, which plans to use them in decision-support applications, transaction processing and future home banking programs. The bank, which already has one NCube system installed, is adding a 32-processor M5 and a 64-processor M10. The M10 will run two Oracle Corp. Version 7.1.3 databases simultaneously, while the M5 will have a single database.

PeopleSoft began shipping client/server applications before most people knew client/server existed.



It's a track record that's hard to beat – especially when you consider that most application vendors are still new to client/server. They're still making promises, announcing plans or experimenting with client/server technology. They're simply not prepared to support you in a client/server production environment.

PeopleSoft began shipping client/server business applications in 1989. And as client/server technology has evolved, we've responded with new releases and functionality. Today, companies worldwide are benefiting from our six years of client/server experience.

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That's why PeopleSoft client/server financial and human resource applications are the choice of 322 companies, worldwide. (As of January 1994.) With more signing up every day. Get the facts from our new white paper: *Client/Server Business Solutions*. For your free copy, and a schedule of our client/server seminars, please call 800/947-7753.

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Mortgage firm embraces client/server, improves customer service

By Rosemary Cafasso

Cary Serif, director of technology at Huntington Mortgage Co., a division of Huntington Bancshares Corp. in Columbus, Ohio, is very familiar with the average homeowner's attitude. When it comes to customer service, "people would say mortgage companies do a bad job," Serif said.

Not so long ago, mortgage companies did not have to care much about customer relations. But as the industry becomes increasingly competitive, mortgage providers are searching for any and all ways — including new customer service systems — to improve efficiency and beat their rivals, industry consultants said.

Out with the old, in with the new

That was the thinking behind Huntington's strategy to toss out the old customer-support processes, which relied on a paper-based loan system, and replace them with client/server-based loan management software.

The system, called Integrated Workstation, gives customer-support representatives a single view of several back-end data sources, including an off-site mainframe, so they can quickly provide information to customers. Integrated Workstation then integrates these views with a set of desktop tools, including word processing, so representatives can respond to a customer and complete the task requested of them.

Serif would not reveal the exact cost of the new system other than to characterize it as a "multimillion-dollar effort." Integrated Workstation is already being used by the customer service and loan auditing groups at Huntington and will be expanded to other departments.

The system uses off-the-shelf technologies including FileNet Corp.'s imaging software and Oracle Corp.'s relational database management system. But the hard and costly work was the internal coding Huntington did to tightly tie together the disparate pieces of the system. For example, Serif's programmers needed to write from scratch the code that would link back-end data files with user applications.

Huntington launched the project in May last year, and the software has been coming on-line in phases since late last year.

Serif said the system is delivering paybacks. For example, it has eliminated the process of storing copies of loans on microfiche, which cost Huntington upwards of $400,000 a year during peak real estate cycles.

But the real boosts are coming in customer service, which had long been a paper-driven operation that essentially prevented customer service reps from providing top-notch service.

Janice Morris, a customer service supervisor, said Integrated Workstation has helped her team improve the quality of service "immensely." She said a customer request as simple as verifying a mortgage's interest rate previously took three or four days to complete but can now be handled in a few minutes.

In the lead

While industry consultants said they were not directly familiar with the Huntington system, Bob Gaudet, president of Financial Consulting Group in Denver, said it sounded like "they were ahead of many.

"A lot of mortgage companies today are simply pushing paper, and what they are trying to do is reduce the number of people that push it. That doesn't give them the savings they need," added Gaudet, whose company will be shipping Unix-based mortgage software later this year.

Bill Bradway, a technology analyst at The Tower Group, a financial services research firm in Wellesley, Mass., agreed. "Lenders who are able to fill their buckets with [loan] commitments faster, in part by processing efficiencies, will make out better."

ON SITE

Huntington Mortgage Co.
Columbus, Ohio

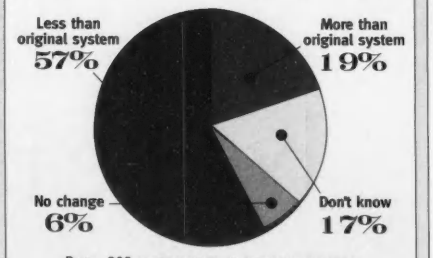
Goal: To fix customer service.

Strategy: Deploy client/server-based system that integrates back-end imaging and data files so customer service representatives can quickly resolve customer problems.

Results: Representatives report problems can be resolved in a few minutes compared with the previous turnaround of two days to two weeks.

Data View

Estimate the cost difference between your client/server system and your original system



BASE: 305 INFORMATION SYSTEMS MANAGERS

DOES NOT EQUAL 100% DUE TO ROUNDING

Source: Business Research Group, Newton, Mass.

Amdahl, Sun

CONTINUED FROM PAGE 77

telecommunications at Entergy Corp., a $6 billion New Orleans utility firm that has nearly 20 large-scale Sun SMP servers.

Triplett said he sees a real advantage in using A+ for on-the-fly client/server applications that search large relational databases. "The place I see it is in the ad hoc query environment," he said. "Those are typically single [client] processes coming in [to the server] and asking for a lot of information."

One user sees a real advantage in using A+ for on-the-fly client/server applications that search large relational databases.

Still, some users said the price tag for A+ may be too high. "I think it definitely has a benefit," said Terry Nelms, manager of systems integrity at LDDS/Metromedia in Jackson, Miss. "I just don't know that the benefit is worth the extra cost."

Users said adding more medium-size Sun servers to gain capacity is a good alternative to adding more CPUs to a single SMP server. "You have to evaluate the price/performance boost you get out of it," said Steve Morgan, director of hardware and database technology at Robertson-Ceco Corp.'s Metal Buildings Group in Columbus, Miss. "Are you going to be better off buying that [A+ software] or buying more servers?"

Briefs

CA makes agreements

Computer Associates International, Inc. signed a multiyear licensing agreement with **Affiliated Computer Services, Inc.** (ACS) that will provide the Dallas-based outsourcing vendor with flexible use of CA software in data processing for its customers. ACS also agreed to become an authorized reseller of CA's Unicenter systems management software products. In a separate deal, CA signed **Bell Sygma**, a Bell Canada subsidiary, to a five-year, multiproduct, multiuser license agreement. No financial details were released on the licensing agreements.

Unisys goes to Far East...

Unisys Corp. has landed a $16 million contract to expand the capacity of the securities transaction system used by the **Korea Stock Exchange**. The contract includes two Unisys 2200/900 enterprise servers that will be installed by October 1995.

...and on to Europe

Unisys Corp. has won a $12 million order to provide UK-based **National & Provincial Building Society** with its FBA Navigator branch banking system. The system, which National & Provincial plans to run on Microsoft Corp.'s Windows NT operating system platform, will be installed next year, according to the company.

Royal outsources with Genix

Royal Insurance of Charlotte, a Charlotte, N.C.-based subsidiary of Royal Insurance Holdings PLC in London, has signed a seven-year mainframe outsourcing contract with **The Genix Group**. Genix will pick up Royal's Charlotte data center as part of the deal, giving the Dearborn, Mich.-based outsourcer a foothold in the Southeast.

Adapting to reality

A promised series of internal TCP/IP adapters for directly connecting IBM mainframes to local- and wide-area networks is taking longer than expected in the laboratory. IBM detailed plans for the Open Systems Adapters in April and hoped to introduce them this fall, but the products will not be ready on time, according to sources. Kevin Moonan, assistant general manager of mainframe marketing at IBM, said the company now hopes to ship the adapters in the first quarter of next year. The devices will let customers link mainframes to up to 16 LANs or WANs without IBM's 3745 or 3172 controllers, according to the firm.

Seagate, Maxtor link patents

Seagate Technology, Inc. and **Maxtor Corp.** signed a cross-licensing deal allowing each to use magnetic storage technologies covered by the other's patents. The agreement includes existing and future patents, the two companies said.

New Products

XL/Datacomp, Inc. has announced the Removable Media Library Software/Client System Component (RMLS/CSC).

According to the Lisle, Ill., company, RMLS/CSC provides IBM AS/400 connectivity to Storage Technology Corp.'s Nearline automated tape libraries. One or more IBM AS/400s can share access to Nearline libraries along with nearly 20 other computer platforms.

RMLS/CSC runs on each client AS/400 and provides users with a control language command interface. This allows independent software vendors to integrate Nearline storage into their applications.

Prices range from $3,000 to $8,000.

▶ *XL/Datacomp*
(708) 434-1200

Greystone Peripherals, Inc. has announced Models 100, 200, 250, 600 and 650 of the GigaBlaster line of software duplicators.

According to the Los Gatos, Calif., company, the GigaBlaster models provide high-speed software and data loading for high-capacity gigabyte-class hard disk and tape SCSI drives. The products also function as random-access mirroring backup systems.

Hardware bit-for-bit data is verified during the copy process.

Prices range from $1,495 to $2,995.

▶ *Greystone Peripherals*
(408) 866-4739

Raxco, Inc. has announced Helpline 2.2, help desk and customer support software.

According to the Rockville, Md., company, Helpline 2.2 features a Windows client connected to servers running Digital Equipment Corp.'s OpenVMS or Sun Microsystems, Inc.'s SunOS.

The product provides networkwide distributed processing on VAX and AXP platforms with a relational database. Users log problems from a PC via Digital's Pathworks, and Helpline connects to Windows through TCP/IP running Oracle Corp.'s Oracle 7.

Prices start at $8,250 for a five-user license.

▶ *Raxco*
(301) 258-2620

Confluent, Inc. has announced Visual Thought 1.0, a drawing and diagramming tool for Unix workstations.

According to the San Francisco company, Visual Thought uses object-oriented technology to create and edit diagrams that can be saved as Encapsulated PostScript files and imported into other applications.

The product can draw shapes and make nonlinear connections such as curves between objects. Built-in applications include software design, data flow, process diagrams, presentation graphics, organizational charts and network diagrams.

Visual Thought costs $1,295 for a floating license and $694 for a single-node license.

▶ *Confluent*
(415) 586-8700

Andrew Corp. has announced TruLynx Elite, a product that provides AS/400-to-Windows connectivity.

According to the Orland Park, Ill., company, TruLynx Elite transforms any PC running Windows and equipped with an asynchronous modem into an IBM AS/400 terminal or printer.

Features include macro functions, copy and paste, customized emulation setting and Dynamic Data Exchange support. Emulation includes keyboard mapping, context-sensitive help and password protection.

Prices range from $125 to $245.

▶ *Andrew*
(708) 349-3300

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Solid planning critical for client/server applications

Forum cites proven techniques, flexibility

By Melinda-Carol Ballou

Client/server developers can plan ahead to avoid future headaches.

One technique is to carefully craft a transition that includes proven techniques and methodologies, including frameworks. This and other advice were offered at the recent Software World USA trade show (see chart at right).

Tom Robben, a vice president at J. P. Morgan & Co. in New York, emphasized the importance of using design methodologies to make it easier to evolve and maintain the new applications over time. Architected applications at his organization were simpler, more modular and easier to understand and document, he said in a presentation.

His group used design methodology tools and consulting services to help create a blueprint for building client/server applications.

As client/server emerges as a viable option for day-to-day business operations, it becomes even more critical to control and manage the process, according to Rich Lansing, a vice president of advanced technologies at Chemical Bank's Geoserve group in New York.

In a forum titled "The Human Impact of Client/Server Migration," Lansing suggested how best to do that. "You must set reasonable expectations ... have a shared vision and values ... and be honest," he said. "I tell my developers, 'Don't hide problems because I can't recover from what I don't know about.'"

His organization found that small groups and teams worked best together partly because it was easier to build trust and have a common focus for the development efforts.

Start fresh

Before setting out on the client/server adventure, however, you must get the house in order, said Steve Barsh, president of SECA, Inc. in Blue Bell, Pa.

"If you have trouble coming up with Cobol and mainframe applications on time, how do you think you're going to do with client/server and object-oriented where there is no historical basis for knowing?" he asked.

But good plans are insufficient: It is critical to use both those plans and change them as the situation changes. "An airplane pilot changes the flight plan as the weather shifts, and [development] plans and methodologies must also adapt," Barsh said.

Developers must also be educated about the blueprints they are required to use. "If we don't think anymore and just press a button [to create applications], it's dangerous," said John Sustar, a civil engineer at Corps of Engineers Strategic Studies Center in Alexandria, Va.

Developer hygiene, including software testing and configuration management, is becoming much more difficult because client/server applications are much more complex than mainframe environments. Tools to address these tasks are just becoming available.

But again, planning and early testing can save considerable expense, analysts said.

"While a bug detected in the analysis phase of design and testing may cost one unit of money, that same problem detected at deployment can cost 150 times as much," said Roger Pressman, president of R.S. Pressman & Associates, Inc., an Orange, Conn., consultancy.

Once client/server applications are built, you must set end-user expectations appropriately, according to analysts. "You may have a sharp-looking [graphical user interface] application without an infrastructure behind it" to control data access, Barsh said. "For the user, it may be like walking through the set of a Western town at Universal Studios, bursting through the barroom doors in search of a drink. But it is just a facade — there's nothing behind it."

Tips for successful, on time deployment of applications

- **Communication:** Help targeted end users describe their needs and understand the business context for what they need.
- **Risk analysis:** Identify technology and project-related risks and create an effective project management structure and transition plan.
- **Software analysis and design:** Lay out disciplined approach to structuring software development. Design methodologies and tools can help; education about using them is essential.
- **Formal inspections:** Finding errors at the analysis and design stage can save significant amounts of money and time to market.
- **Software configuration management:** Control and manage changes to the code and to all information relating to software.
- **Software process improvement:** Select an appropriate common framework for evaluating the development work and examine the process cyclically six weeks, three months and six months into the project.

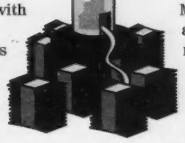
Source: SECA, Inc., Blue Bell, Pa., and R. S. Pressman & Associates, Inc., Orange, Conn.

C++ environment gives Chase technology for complex trading

By Thomas Hoffman

Dealing with derivatives has traditionally been a mainframe-based activity at The Chase Manhattan Bank NA. But as derivatives products have become increasingly complex, banks have needed more robust application development tools to support them.

In short, the technology must keep pace with the complexity of the investment.



"The volume and complexity of derivatives are so great that they have to be handled by automated systems," said Hal McIntyre, a managing partner at The Summit Group, a Murray Hill, N.J.-based securities processing consultancy.

Derivatives are a set of sophisticated financial instruments whose value is linked to, or derived from, the performance of an underlying asset such as currencies or commodities. Derivatives positioned in areas such as mortgage-backed securities began losing value earlier this year when the Federal Reserve System began increasing interest rates.

Because of all the activity, Chase is moving its derivatives system from the mainframe to a client/server setup.

"In the mainframe environment, we were using an internal [homegrown] system which handled 'vanilla' transactions very well," said Neil Wright, vice president of Chase's global derivatives operations. "What we needed was something that could handle more sophisticated products."

That is where Infinity Financial Technology, Inc.'s Montage product set stepped in.

Montage consists of intuitive applications for trading and risk management, as well as object-oriented tool kits such as the Montage Data Model and Fin++ Class Library, a set of C++ financial models.

Around the globe

Chase, whose programmers began using the software in June, will roll out its first derivatives applications by the end of November. The applications will run on Sun Microsystems, Inc. SPARCstations, which are used throughout Chase's global trading network in New York, London, Milan, Italy, and other locations.

Wright said the Montage tools will be used by about 50 Chase staffers, including traders, their support staff and back-office programmers. The bank will use the Montage software suite to develop databases to capture the derivatives transactions. It will then use proprietary systems to determine the value of the transactions, Wright said.

In the past, if a Chase fixed-income trader needed deal information, he had to call someone in the back office and have him manually search through deal tickets to locate and match the correct transaction. In that scenario, the accuracy of the data was often unconfirmed for hours, according to Dexter Charles, a Chase vice president who runs the bank's North American fixed-income derivatives trading desk.

With the Unix-based systems, a trader will be able to access an on-line database containing deal information to verify the accuracy of the data in minutes.

As a result, the Montage system will "provide us with deal information in a more efficient way," Charles said.

Chase Manhattan Vice President Dexter Charles: *Unix systems check accuracy in minutes*

Better off

Chase, with $114 billion in assets, has suffered less from this year's derivatives debacle than other banks that held larger investments, such as Bankers Trust New York Corp. and J. P. Morgan & Co., according to Ronald I. Mandle, a banking analyst at Sanford C. Bernstein & Co. in New York.

Report writers heed call to high end

By Melinda-Carol Ballou

Report writing is one of the least glamorous technologies around, but it is absolutely critical because most companies rely on reports to make business decisions. The task recently got a bit of a boost with a new high-end tool.

The market for high-end report writers, which can process thousands of pages consistently across Unix or VAX servers, has yet to really jell, analysts said. Some traditional Windows-based packages cannot handle that high volume, and few options have come along.

"This is a sleeper market, kind of like software testing tools," said Mark Haner, an analyst at Meta Group, Inc. in Burlingame, Calif. "No one is interested in talking much about it, but you ask [high-end] users and they say, 'That's exactly what I want.'"

Word to the wise

IQ Software Corp. in Norcross, Ga., is shipping a new version of its query and report writer. IQ for Windows, which lets end users access relational databases without setting up interfaces, has a graphical report painter and a charting module.

Enter Software Interfaces, Inc. in Houston. The small, 5-year-old company recently introduced SQLAssist ProReports, which runs on Windows and Unix-based X Window/Motif platforms. With Pro Reports, users can create a report on a Windows word processing package, for instance, and then run the report from any supported client or server machine, while the report retains the same formatting attributes across the board.

This allows users to maintain consistent page layout for their reports across multiple platforms, Software Interfaces officials said. Processing-intensive reports can be off-loaded to more powerful servers, they added.

ProReport also allows users to handle multiple queries in a single report, letting them search multiple graphs and tables, for instance.

"As our database designs get more and more complicated, we place more demands on our report writer. Being able to execute multiple queries in a single report will be a big plus," said Steve Long, a lead programmer/analyst at Arkwright Mutual Insurance Corp. in Waltham, Mass.

Long added that ProReport offers an enhanced rules file capability that his group used to enable end users to build queries without understanding the database. "We made it nearly idiot-proof so it's extremely difficult now to build an inefficient query," he said.

But some industry analysts said ProReport's interface is technical and somewhat arcane — that while the tool is robust, it targets information systems departments rather than end users.

"It's a technical interface developed by technicians, but in terms of the core functionality, it seems pretty rich," said Howard Dresner, an analyst at Gartner Group, Inc., a Stamford, Conn., consultancy. "I think it's an appropriate environment for those who are trying to support an ad hoc production environment and also for clients or users that will be supported by IS professionals."

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New Products

Open Software Associates, Inc. has announced OpenUI 3.0, an integrated visual development environment for designing client/server applications across multiple platforms and graphical user interfaces (GUI).

According to the Nashua, N.H., company, OpenUI 3.0 includes object-oriented functionality and a visual builder that provides integration with all phases of the programming process.

Developers can use OpenUI to specify the appearance and behavior of the user interface, and the product's messaging system links the application code to any standard GUI.

The product functions around the development environment, so users can develop in the language of their choice. The application code does not change when changes are made to the interface and vice versa.

Prices range from $3,500 on Windows to $7,900 on Unix systems, with no runtime fees.

▶ *Open Software Associates*
(603) 886-4330

Case Methods Development Corp. has announced Synergy 3.0, a graphical user interface (GUI)-based software process management system that includes electronic-mail support.

According to the Richardson, Texas, company, Synergy 3.0 lets teams have interactive control over the software development environment by tracking and managing work products produced during a project, including deliverables, change requests, issue statements and quality inspection reports.

The product lets developers define and customize methodology or process templates to meet the needs of their organization. Other features include a GUI, an integrated interface to many project management systems and direct access to users' computer-aided software development tools.

Synergy 3.0 costs $54,000.

▶ *Case Methods Development*
(214) 644-8173

Magna Software Corp. has announced Magna X, an application development environment aimed at the server side of on-line transaction processing applications.

According to the New York company, Magna X generates server code for both Unix and MVS/CICS so developers can keep the client/server application's data on the mainframe.

The product lets developers build applications that run on client/server transaction processing monitors from Novell, Inc. and Transare Corp. The Magna X high-level programming language and visual design tools let users produce without learning Unix or C.

Magna X costs $40,000.

▶ *Magna Software*
(212) 691-0300

MuTech Corp. has announced the JPEG-SDK, a software developer's kit.

According to the Woburn, Mass., firm, JPEG-SDK lets users embed high-quality image compression in their applications.

The product is optimized for developing high-quality images on an Intel Corp. x86-family CPU. The package supports all formats commonly used by Windows and DOS programs and includes file-to-file, file-to-VGA and direct frame grab-to-file modes of operation.

JPEG-SDK costs $1,500 and includes 100 runtime licenses.

▶ *MuTech*
(617) 935-1770

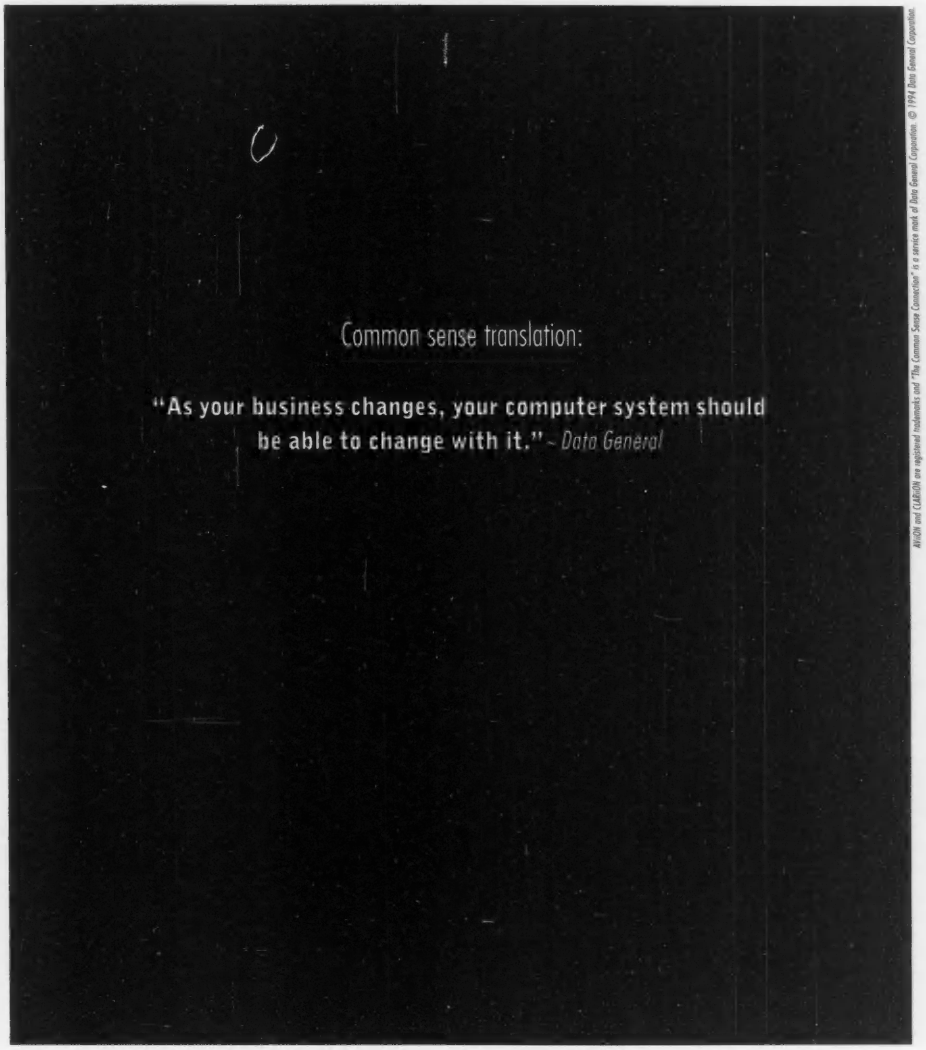
Sylvain Faust, Inc. has announced SQL-Sombrero, a suite of development tools that support Microsoft Corp.'s SQL Server and Sybase, Inc.'s SQL Server.

According to the Hull, Quebec, firm, SQL-Sombrero supports Object Linking and Embedding (OLE) automation, Microsoft's Visual Basic custom controls and OLE custom controls. The products were designed to provide developers with more control when accessing data directly from a server.

The tools also provide an interface to access Sybase's Client Library and DB-Library without using C or C++.

The tools include SQL-Sombrero/OLE 2/DB2 Library and SQL-Sombrero/VBX/DB-Library. Each costs $249.

▶ *Sylvain Faust*
(819) 778-5045



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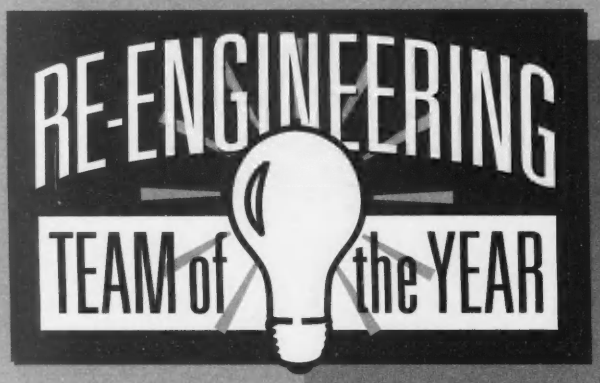

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- Dramatically improved the company's bottom line and competitive position;
- Displayed outstanding IS-user teamwork.

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Submissions may be made by end-user organizations and vendors, consulting firms and system integrators on behalf of their clients. Companies selected for consideration will be contacted by a *Computerworld* representative for further details and verification. The winner will be chosen by a panel of *Computerworld* editors. All entries are the property of *Computerworld*.

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DEMONSTRATING THE VALUE OF TECHNOLOGY

Demonstrating the value of technology investments to top executives and users can be a difficult task for even the best IS managers. But some forward-thinking CIOs have found a way to prove . . .

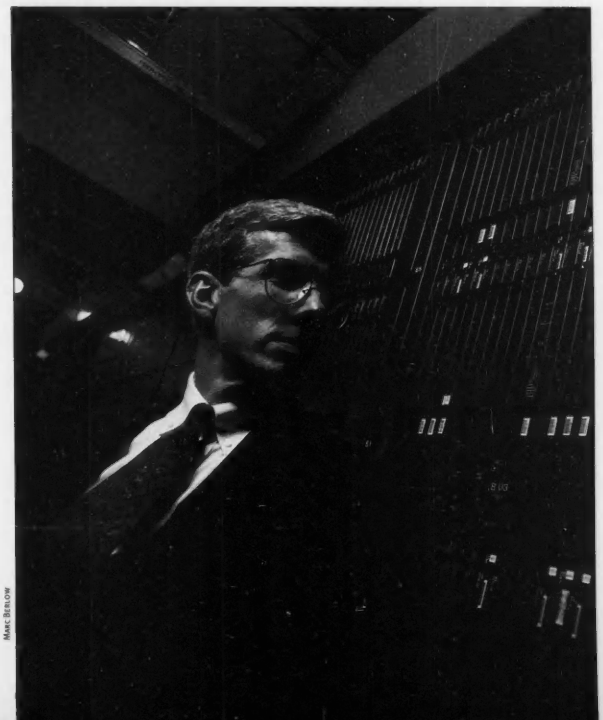
IT's got what it takes

Eighteen months ago, the chairman of Chicago-based telecommunications holding company Ameritech Corp. called together his senior information systems executives.

"He said, 'What are you doing for me? Explain why I need you at all,'" recalls Eric Christensen, director of consulting services at the $11.7 billion telecommunications giant.

That question prompted Christensen to explore ways to measure the contribution of IS to Ameritech's rapidly expanding businesses. It also led to a major restructuring of Ameritech's IS function.

Eric Christenson found *Ameritech wasn't devoting enough time to marketing IS*



MARC DENLOW

Christensen's experience is becoming increasingly common as management calls on IS executives to demonstrate beyond a doubt the value of technology investments. This is a tall order, especially when it comes to intangibles that don't lend themselves to dollar figures.

In this second part of a *Computerworld* management series on how visionary chief information officers demonstrate the value of technology to their organizations, we look at how Ameritech, Texas Instruments, Inc. and the city of Sunnyvale, Calif., found proven ways to dem-

IS investments, *page 88*

By Alice LaPlante

Ameritech

Matching business objectives with technical support

IS investments

CONTINUED FROM PAGE 87

onstrate the return on technology investments. Part I of the series ("No Doubt About IT") ran in the Aug. 15 issue. The third and final part will be published Oct. 31.

AT AMERITECH, IS DEMONSTRATES BOTH THE EFFICIENCY AND EFFECTIVENESS OF TECHNOLOGY INVESTMENTS

Outside assistance

To demonstrate the value of Ameritech's IS investments, Christensen chose a methodology created by CogniTech Services Corp. in Easton, Conn., a 5-year-old consulting firm specializing in measuring the effectiveness of information technology.

The CogniTech method enables a company to survey such subjects as reporting structures, organizational hierarchy, architecture and corporate and IS cultures to arrive at a numerical score for their efficiency and effectiveness.

CogniTech's method is based on the premise that effectiveness, not simply efficiency, is the key to IS success. The difference? Efficiency measures whether a certain activity, product or service is delivered at the lowest possible cost. But efficiency doesn't question whether the activity, product or service delivers needed results, as effectiveness does. An IS organization could be extremely efficient at developing new applications or repairing faulty equipment without being effective.

> "We tend to be rather hard on ourselves, and we were concerned about how the reliability of this system was viewed by our users. It was a pleasant surprise to see how happy our users were with it."
>
> **ERIC CHRISTENSEN, DIRECTOR OF CONSULTING SERVICES, AMERITECH**

Christensen hired CogniTech early last year to analyze Ameritech's IS effectiveness. CogniTech extensively surveys end users in a particular department or functional area to zero in on the match between business objectives and technological support for those objectives, says Kay Redditt, a principal at CogniTech. Corporations such as Ameritech then analyze a number of departments to get a sense of overall corporate IS effectiveness.

CogniTech's consultants, with the help of Christensen's staff, began by identifying key users in five Ameritech operating units. This included the entire layer of "tier 1" management: all vice presidents and senior managers who report to the president of the division.

"This would include vice presidents heading all marketing, sales, service, operations and financial activities for that unit," Christensen says.

These managers were asked to list their key business objectives for the current fiscal year. "The most commonly stated objective was to grow revenues; after that, managers were interested in such things as reducing cycle time and lowering inventory levels," he says.

These objectives were stated as exactly and quantitatively as possible. For example, a goal would be a "15% increase in sales" or a "20% reduction in inventory levels."

These initial responses were interesting to IS managers, Christensen says. "For our businesses to be talking about revenue growth rates — sometimes in excess of 20% — represented a whole new paradigm for this industry and this company," he adds.

And for IS managers to begin thinking how to enable this type of growth rather than just make operations more efficient was quite eye-opening, Christensen says.

Filling in the gaps

After identifying each unit's business objectives, CogniTech consultants worked with users to rate how IS had helped meet those goals and, based on the findings, gave IS an effectiveness rating. The results were given to business and technology managers in a written report.

CogniTech consultants then led workshops at each unit to stimulate discussion and note any "gaps" between business needs and IS services.

"The numerical rankings were helpful, but we felt the workshops were especially productive," Christensen says.

The workshops clarified the findings of the surveys and helped identify actions IS needed to take. These action items were then brought to the corporate IS council for review.

For example, Christensen explains, the CogniTech survey revealed that Ameritech wasn't devoting enough time or resources to marketing information systems. Ameritech had virtually no databases to provide sales and marketing personnel with easy access to critical customer and market research data.

"We'd been hiring people with consumer marketing backgrounds who were appalled by the fact that they couldn't get any data on the effects of a particular marketing or advertising campaign," Christensen says.

Ameritech could have had "a wealth" of customer usage and demographic data just by tapping into the records of its massive phone network, he says, but there was no synergy between marketing and IS to make this possible.

The benefits of such a marketing information system would be difficult to quantify using traditional return on investment (ROI) calculations, which might have "shaved another penny or two off IS operations" but not made the system more effective at providing critical data to marketing groups, Christensen says.

In addition to this constructive criticism, Ameritech's IS group received significant kudos from users. Business units gave high ratings to the warehouse management suite of applications, which includes procurement, purchasing and warehousing functions.

"We tend to be rather hard on ourselves, and we were concerned about how the reliability of this system was viewed by our users," Christensen says. "It was a pleasant surprise to see how happy our users were with it."

Ameritech's IS group was also seen as having a strong "market-driven" culture. CogniTech analysts said that organizationally, the IS managers and staffers were "extremely well-positioned to leverage IS investments within and across departments," Christensen says.

Evidence of this has become clear in the 18 months since Ameritech began using the CogniTech methodology, he says.

Bill Weiss, the chairman who had been so skeptical of IS benefits, did not curtail IS efforts but began involving Ameritech's top technologists in high-level strategic decisions that affected the future of the company's business. Weiss retired in May 1993, but his successor, Dick Mulhame, often invites Ameritech's vice president of information technology to critical business negotiations or conferences.

"Just today, our new chairman flew up to Northern Telecom to discuss a new project, and he took our CIO," Christensen says. ■

While effective, the CogniTech analysis can be costly and time-consuming:

COST OF ANALYSIS
$15,000 per business unit

TIMETABLE
4-6 weeks

DEPARTMENTS REVIEWED
Several, to get picture of overall IS effectiveness

FOLLOW-UP REVIEWS
Every 18-24 months

THE COGNITECH WAY

CogniTech uses the following methodology to measure both the effectiveness and the efficiency of IS

1. Department managers identify key business objectives.
2. Key users review IS efforts toward meeting those goals, using four parameters:
   - What is the actual contribution of IS?
   - What is IS' potential contribution by anticipating needs?
   - How important are IS investments in each unit compared with other investments?
   - How does the value of IS services compare with their cost?
3. CogniTech does organizational analysis to rate the IS function.
4. "IS effectiveness" is determined from the above steps, and recommendations are made on how to improve that effectiveness rating.

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Sunnyvale
Performance-based budgeting

SUNNYVALE'S METHOD FOR DEMONSTRATING IS' VALUE HAS NEARLY EVERYONE HAPPY

Talk about accountability. For managers of the city of Sunnyvale, the center of California's Silicon Valley, this isn't just a buzzword — it's a daily routine.

By strictly adhering to a concept called performance-based budgeting, Sunnyvale ensures value from any investments in personnel, products and services, including IS. If value isn't proven, the budget for that particular department or function gets cut. The bottom line: Deliver value — or else.

Sunnyvale's mechanism for managing expenses, which has evolved over 21 years, has led Vice President Al Gore's National Performance Review, among others, to single out the city as one of the best-managed governments in the U.S.

Unlike traditional budgets, which are organized by line item, Sunnyvale focuses on "service objectives." These are specific service targets that city employees must meet. This stringent methodology includes directives on the ways the city will measure the quality of the services being delivered and a strict accounting of all costs.

> "I've always felt inadequate going to senior management and simply saying, 'This is what I need.' Having some sort of mechanism that we all agree upon when scrutinizing potential [information technology] investments will actually make my job easier."
>
> **SHAWN HERNANDEZ, SUNNYVALE'S DIRECTOR OF INFORMATION TECHNOLOGY**

Performance-based budgeting is used for all city services, from police and fire protection to street and sidewalk repairs. And IS is no exception, says Shawn Hernandez, Sunnyvale's director of information technology.

For example, service objective #766H requires that IS complete all application modification requests within 30 days 90% of the time. IS must also document any code changes within five days of modification 90% of the time.

At the beginning of every budget cycle (every two years), acceptable performance levels are set for each service objective. Finally, each service objective contains a list of specific tasks, as well as an estimated "maximum allowable cost" for completing each one.

Department budgets must contain all these elements when they are submitted. Managers are then required to track the tasks completed (and costs per task) to evaluate the relative cost efficiency and productivity associated with each task and, subsequently, each service objective. For each two-year budget, managers must project costs and service objectives 10 years ahead to ensure a balanced budget.

In IS, most service objectives are measured by end-user surveys as well as careful tracking of statistics on such things as network and system uptime and speed of response to service calls. Once a particular service objective is achieved, Hernandez says, Sunnyvale pushes the measurement criteria "up a notch in order to improve things even further."

More valuable than you know

One sign that Sunnyvale is happy with IS: The city is approving more personnel and resources for the department. City manager Thomas Lewcock says he expects technology will take an even more prominent role in the future.

Yet Lewcock is still not satisfied that performance-based budgeting fully captures all the value that IS delivers.

When Hernandez took the CIO post at Sunnyvale in February, he proposed replacing the archaic proprietary host-and-terminal systems infrastructure with an updated client/server architecture built around open systems and a centralized Oracle Corp. data repository.

Hernandez set in motion the performance-based budgeting machinery. He articulated service levels, tasks and performance indicators and calculated the hard costs of both building and maintaining the new base architecture.

The city's IS budget works on a charge-back basis. So it was easy to compare the relative costs of maintaining and supporting the new architecture (a distributed Unix environment) with the old one (a proprietary Hewlett-Packard Co. HP 3000 cluster).

The analysis showed that there would indeed be long-term (20-year) cost advantages to switching platforms, according to Hernandez. But Lewcock, his boss, wasn't satisfied. He "put me through the wringer trying to figure out some of the 'softer' benefits that would come from switching architectures," Hernandez recalls.

The problem, according to Lewcock: keeping too close an eye on costs and hard benefits. That might cause Sunnyvale to miss valuable opportunities to reap intangible IS benefits.

Lewcock sent Hernandez back to the drawing board to develop "super rules," or criteria to make it easier to reach technology decisions promising soft benefits.

"For example, a new law enforcement system that allows us to develop statistical ways of establishing crime patterns could conceivably help us with more efficient beat deployment," Lewcock says.

Although the subsequent quality of city law enforcement activities might rise significantly, "this wouldn't necessarily translate back to the bottom line in a way we could measure easily," he adds. "I need a mechanism that makes these kinds of decisions easier."

"When we're done, every new project will be scrutinized according to this mechanism by the executive committee," Hernandez says. "My job then becomes one of collecting data, helping the departments formulate their [information technology] requests according to the mechanism and then implementing the approved projects."

How does he feel about this? Just terrific.

"I've always felt inadequate going to senior management and simply saying, 'This is what I need.' There's always been an educational process required," he says. "Having some sort of mechanism that we all agree upon when scrutinizing potential [information technology] investments will actually make my job easier." ■

When Shawn Hernandez took the post of CIO in Sunnyvale, Calif., he inherited an aging technology infrastructure. The city employs more than 700 workers and has an annual budget of more than $120 million. But although a number of advanced technologies are deployed by isolated departments in the city, the back-office administrative systems and underlying communications and hardware infrastructure were in need of replacement.

PLEASING ALL OF THE PEOPLE, MOST OF THE TIME

Each service objective contains what Sunnyvale calls 'performance indicators' (PI), or units of measurement. For example, service objective #766H requires that IS complete all application modification requests within 30 days 90% of the time. IS must also document any code changes within five days of modification 90% of the time. Within service objective #766H, the following PIs must be measured:

- The percentage of city employees who feel their software application meets their expectations (PI 766H-01)
- The number of all applications developed by internal IS staffers
- The number of applications purchased from vendors
- The number and percentage of city employees using applications developed by the internal IS staff
- The number and percentage of city employees using applications supplied by vendors

KEEPING THE INTERNAL CUSTOMERS VERY HAPPY

The attitude of Sunnyvale city employees toward IS has risen dramatically, with the IS group recently achieving a 99% approval rating from users

	FY 1992	FY 1993 TARGET	FY 1993 ACTUAL
BIGGEST IMPROVEMENT AREAS:			
Centralized applications	83.3%	85%	99%
Desktop workstations	78.9%	85%	97%
NEXT TARGET AREAS:			
Customer satisfaction	–	–	96%
Software applications	–	–	93%

Texas Instruments
Authorization to proceed

TI'S LEADERSHIP TEAM FORCES THREE REVIEWS OF IS PROPOSALS

Don't think the lights automatically turn green for technology investments, even at technology companies. Just ask IS executives at Texas Instruments, Inc., a Plano, Texas-based high-tech manufacturer that racked up $8.5 billion in sales in fiscal 1993.

"Absolutely no [information technology] project gets funded without a thorough demonstration of the benefits that will accrue to the affected business units," states Gary Pollard, total quality director for TI's information systems and services group. Pollard oversees how effectively TI leverages its worldwide technology investments.

Some job. TI realized in the early 1980s that a formal process for bringing business managers into the IS decision loop was critical for aligning strategic corporate and technology strategies. And it's no coincidence that this realization came at a time when TI's manufacturing groups had just begun implementing total quality management (TQM) principles, such as continuous process improvement and a focus on customer satisfaction.

> "I think we [business units] are recognizing the importance of [information technology]; if used effectively, technology can help you further streamline processes."
>
> **CHRISTINE DAVIS, VICE PRESIDENT AND ENGINEERING MANAGER, TEXAS INSTRUMENTS' DEFENSE SYSTEMS AND ELECTRONICS GROUP**

"It was a bit of a stretch to figure out how TQM fit within" information technology, Pollard acknowledges. "But we saw how well process improvement was working in manufacturing operations and knew we had to give it a try." As a result, the first total quality manager for IS was appointed.

But TI managers realized that although these kind of metrics might show that IS is performing efficiently, they don't necessarily measure whether IS is providing value to its internal customers effectively.

So TI established an executive steering committee. Now called the Internal Information Systems Leadership Team, it comprises 10 senior managers from TI business units. They meet regularly to examine and comment on proposed and ongoing IS investments. The team monitors IS budgets, checks on the progress of major initiatives and signs off on all strategic IS decisions.

Recently, for example, the leadership team approved an 80-page, IS-developed "road map" that details how TI will migrate from its mainframe-centric architecture to a distributed client/server infrastructure. "In effect, this is our 'watchdog' committee; they are there to make sure that things we consider reasonable as technologists are indeed reasonable to the business," Pollard says.

"We really feel the difference," says Christine Davis, vice president and engineering manager at TI's Defense Systems and Electronics Group. Davis joined the IS leadership team 12 months ago to make sure the needs of her business unit were better understood. "We feel we have more of a say in everything. There's better buy-in on both sides," she explains.

Most importantly, says Davis, a 20-year TI veteran, "I think we [business units] are recognizing the importance of [information technology]; if used effectively, technology can help you further streamline processes." For example, in her business unit, there is a continued emphasis on reducing cycle time. And "although you don't want to automate everything, participating on the leadership team helps us appreciate and understand what type of solutions make sense," she says.

There is no dollar threshold to trigger the need for the team's approval. But any proposal involving a "significant IS investment" is routinely placed on the agenda, Pollard says.

The formal proposal contains a traditional cost/benefit analysis. It details all projected costs: hardware, software, services and personnel time. It also quantifies expected benefits, such as reduced personnel head count, reduced overhead costs or increased sales.

But benefits that can't be quantified are also included in the proposal. It's not uncommon for the leadership team to use what Pollard calls the "reasonable person's" ROI methodology to determine if a project that promises largely intangible benefits is worth pursuing.

For example, he says, several years ago IS proposed building a strategic business system for customer order entry, billing and shipping activities. It would be used throughout the company's worldwide operations. Each item to be shipped was bar-coded. Employees shipping customer orders in TI warehouses scanned the contents of each shipment and compared them with the bills of lading to ensure there were no errors.

As it turned out, Pollard says, no labor savings resulted from this automation effort: It actually took longer to pack each customer crate due to the need to read the bar codes.

But the leadership team decided there were benefits to developing and implementing the system: fewer shipping errors and greater customer satisfaction. "The number of shipments returned to TI due to incorrect products or quantities was already low — less than 2% — but it went down to virtually zero once we installed the system," he says.

It was difficult to calculate the increased revenue that enhanced customer satisfaction might bring TI. "Certainly we couldn't project that with any certainty," Pollard says. But it seemed reasonable to the leadership team that "our customers would be happier if there were fewer shipping errors."

But although well-established TQM procedures and leadership team watchdog activities had been in place for more than a decade, TI still wasn't satisfied. Three years ago, IS management began scrutinizing projects that had already gotten the green light from unit sponsors and the leadership team to see if they were actually benefiting the business.

IS initiated a new methodology for application development that requires each project to pass three stringent "authorization to proceed" reviews before it can be deployed. Once a project has been rolled out, the internal customer must go through a formal checklist and sign off that the project is complete.

"Our clock for measuring development cycle time for that application doesn't stop ticking until we receive that formal sign-off," Pollard says.

Each project proposal is put through a series of checkpoints (see chart below). The first makes sure that both IS and the business units involved agree on the project's goal, approach, feasibility and expected benefits.

"The flaws become pretty obvious by that point," Pollard says. Occasionally, however, a proposal can make it past the first review stage before the plug is pulled.

Pollard remembers one project in development for two years that made it to the second review stage before being killed. "IS wound up saying to the customer, 'You are trying to automate a bad process. You need to re-engineer your business rather than attempt to build this application. It wasn't until we had the design completed that we realized how cumbersome and complex this application was going to be.

"They could have spent a fortune, only to discover they had a flawed approach to solving that problem," he adds. Of course, there was some initial disappointment, "but that's the point of this methodology: to prevent us from throwing good money after bad," he says. ■

LaPlante is a free-lance writer in Woodside, Calif.

WHERE'S THE PROOF?

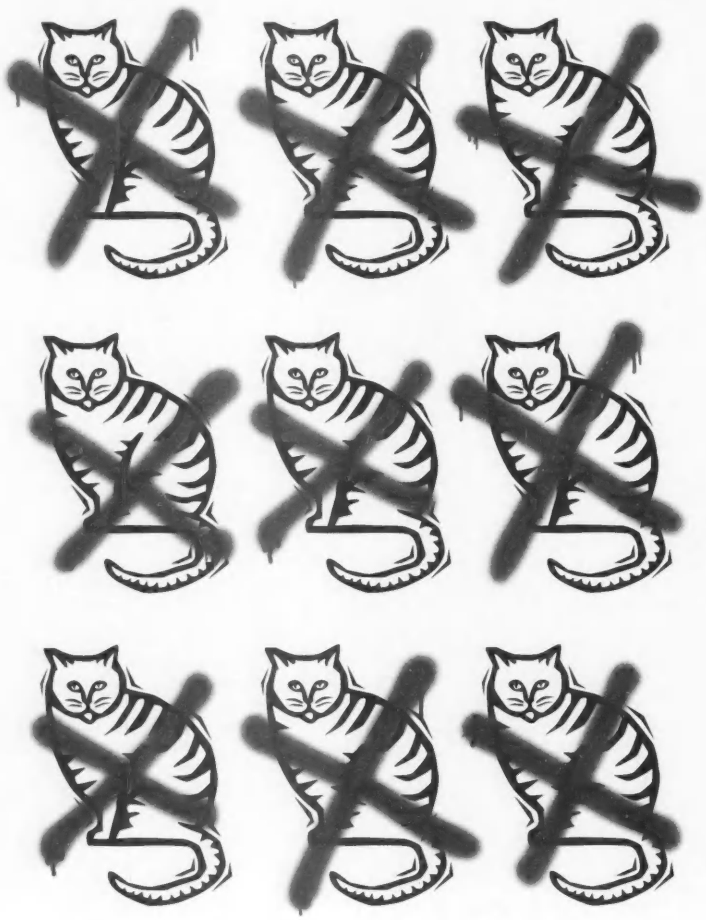
To protect their IS investments at Texas Instruments, business units now commonly provide only enough funding for the first project review, the conceptual design stage.

This 'proof of concept' measure ensures that the sponsor business unit is satisfied that promised benefits will materialize.

PASSING THE LEADERSHIP TEAM TEST

Texas Instruments requires that each IS project pass three stringent 'authorization to proceed' reviews in order to get the go-ahead. The reviews are conducted by a team of both IS and business unit representatives.

REVIEW 1	■ Held after the 'conceptual' design is completed ■ Identifies project goal and approach ■ IS/Business users must agree on feasibility ■ Initial cost estimates are provided ■ Expected benefits to customer are identified
REVIEW 2	■ Held when application design is completed ■ Project must meet user requirements ■ Development schedule is reviewed ■ Costs are reviewed against initial estimates
REVIEW 3	■ Held when application working prototype is complete ■ Operation costs are confirmed as reasonable ■ Project quality is confirmed as acceptable
APPROVAL	■ Application is deployed in the business



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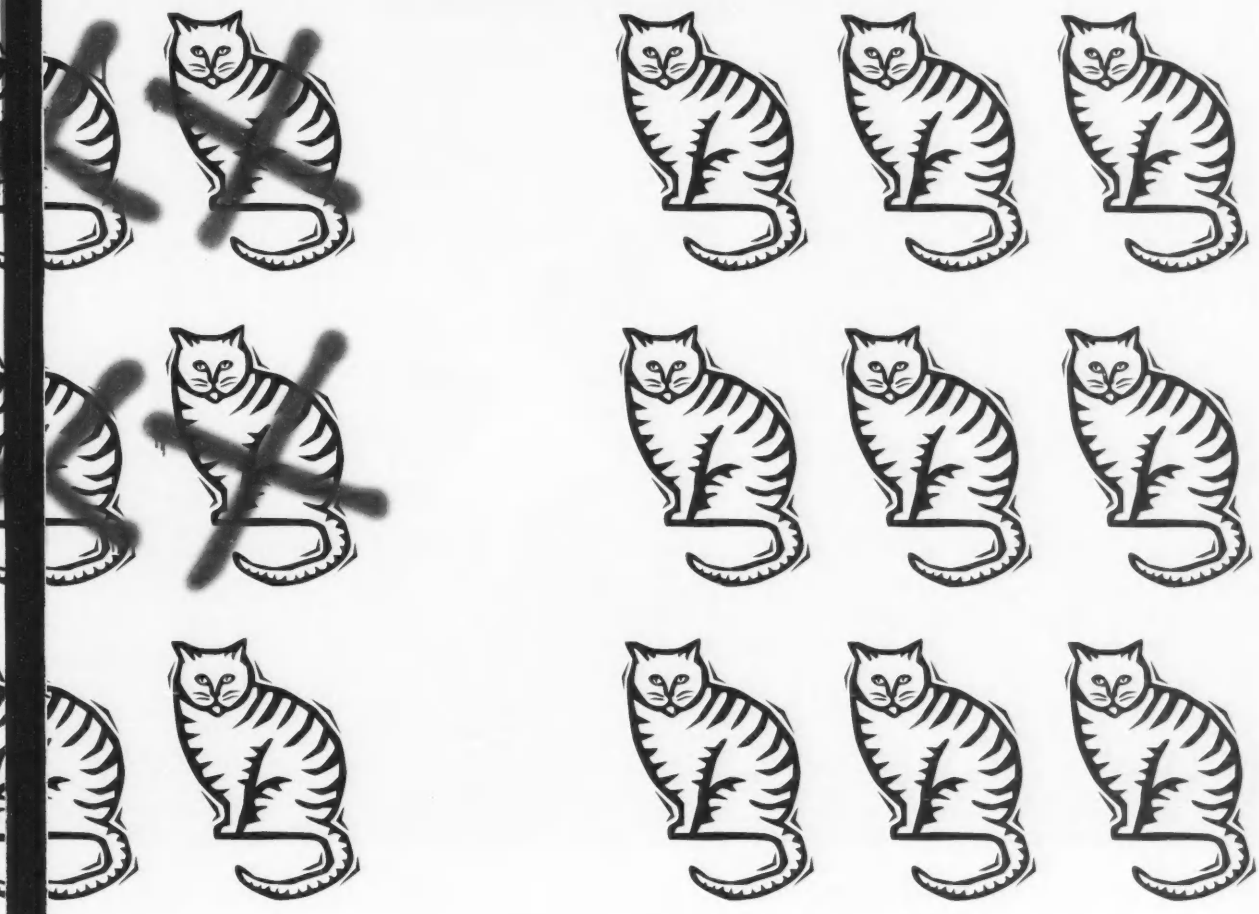

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Re-engineering the Workplace

PEOPLE PROBLEMS UNDERLIE HIGH FAILURE RATES

Rocks in the Gears

SPECIAL QUARTERLY REPORT

BY JOSEPH MAGLITTA

Bad processes don't kill re-engineering projects; people do.

According to information systems leaders and consultants, employee resistance and poor management are driving up already high failure rates and squandering the estimated $1.2 billion that U.S. companies will spend this year on re-engineering services.

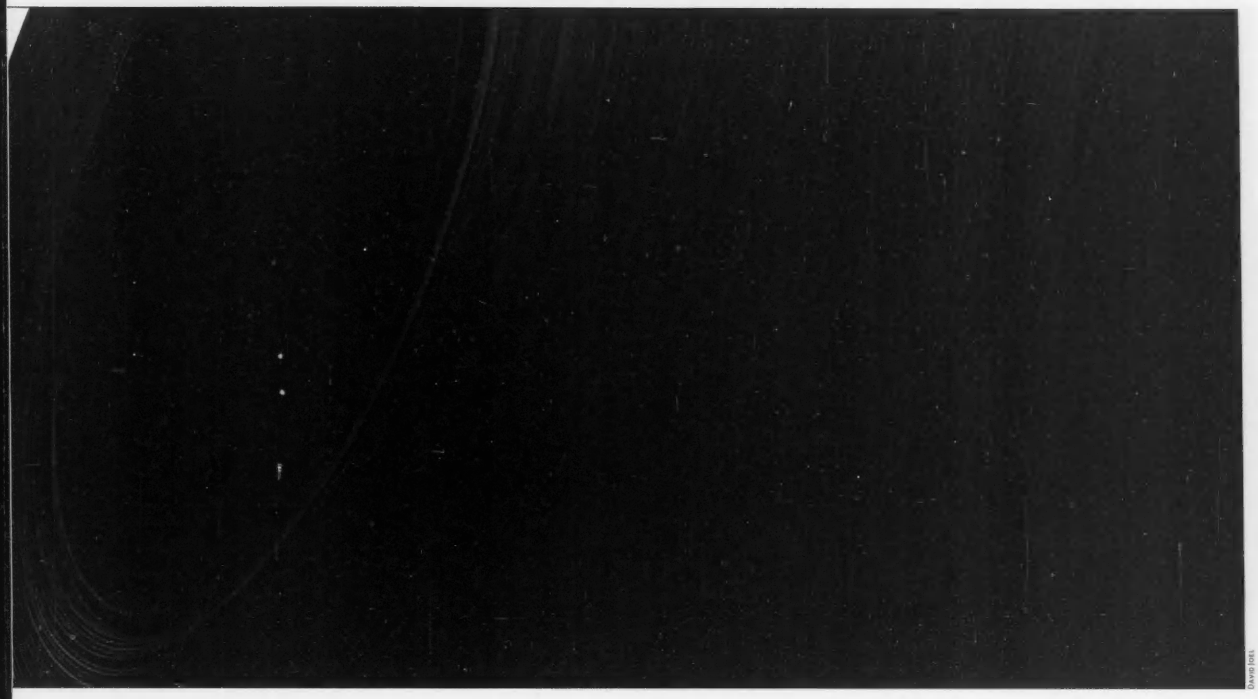
Consider this true tale: Peter, a 51-year-old programmer, tried to stay cool last July when the Los Angeles firm he worked at announced major re-engineering and reorganization plans.

Peter (a pseudonym) had spent nearly 32 years — his entire career — working in the firm's IS group. But when management announced during the Christmas season that it would lay off 1,200 workers, he and others couldn't help feeling edgy.

"Nobody really knew what their new job was," he recalls. "They said, 'Here's your new title,' but nobody knew what to do. A lot of work just kind of stopped. And you didn't know if the person discussing things at the watercooler was going to be doing your job the next day."

Further, the company provided no team training for employees. Re-engineering team leaders remained tight-lipped about future directions and plans, so many workers felt anxious and unmotivated.

In May, Peter's worst fear came true: He got a pink slip. As he



searches for work today, he's critical about how things were handled.

"They took a select number of people. They put them in a hotel for several months. They were supposed to come up with a new structure for the company," he recalls. "What happened was the people in the meeting feathered their own nests. If you weren't in that meeting, you were at the mercy of the process."

Peter's experience, and a pile of new studies, confirms what every manager bloodied by process improvement knows too well: Re-engineering seems like a much better idea to companies and shareholders than it does to most employees.

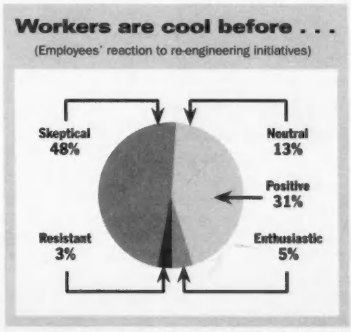
Recent surveys by CSC Index, Inc., Arthur D. Little, Inc., Kepner-Tregoe, Inc., Deloitte & Touche, International Data Corp. and others (see charts below) concur. They warn that the radical transformation of business is being slowed, sometimes fatally, by internal footdraggers at every level, from chairman to tape drive operator.

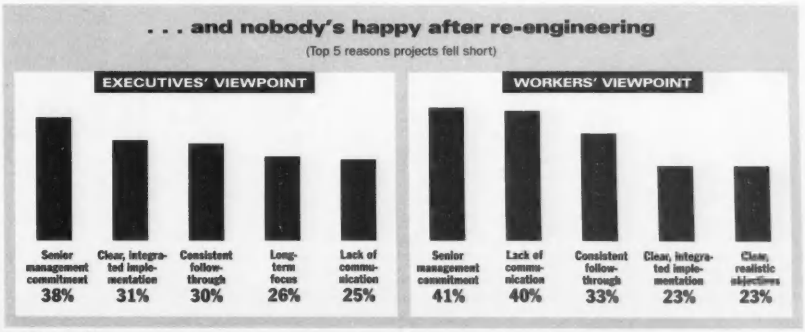
"The [re-engineering] challenge is no longer technical. It's getting the user community too involved to the point of pull rather than having the technical people push," says Bill Howard, vice president of information technology at Inland Steel Industries in Chicago.

▲ Inland Steel's BILL HOWARD: "You need to help people understand there's no magic long bomb, just the down and dirty blocking and tackling."

Max Hopper, chairman of the Sabre Group at American Airlines in Dallas, agrees. Most re-engineering projects fail, he

Re-engineering, *page 96*





Source: Survey of 182 North American senior executives by Kepner-Tregoe, Inc., Princeton, N.J.

Re-engineering

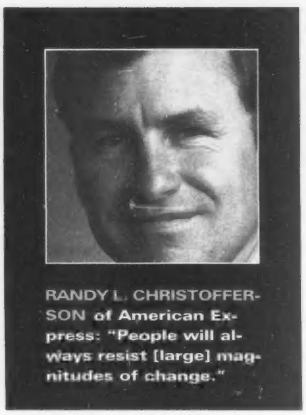
CONTINUED FROM PAGE 95

says, because "managers have forgotten that, in the long run, to make it work you've got to get people involved."

Same old, same old

Resistance to re-engineering is, of course, predictable and hardly new. Michael Hammer, James Champy, Thomas Davenport and other founding fathers of the movement predicted that everyone from ambivalent chief executive officers to turf-conscious middle managers to suspicious workers would have to be dragged into most redesigns.

What's troubling about the latest surveys, however, is the increasingly clear link between organizational drag and alarmingly high re-engineering failure rates — by some estimates 75% or worse.



RANDY L. CHRISTOFFERSON of American Express: "People will always resist [large] magnitudes of change."

And opposition appears to be growing. "More and more people know what they should be doing," Hammer says. "There's less ignorance and more wickedness."

That's especially true among middle managers, many of whom aren't above "sabotaging pilots of other folks they don't want to succeed," adds Steven Stanton, a CSC Index re-engineering veteran who now serves as director of Hammer & Co.

Think the big boss is immune? Think again, says Mark M. Klein, managing director of consulting services at Gateway Consulting, a spunky re-engineering boutique in Port Washington, N.Y. "Often a champion will very enthusiastically create the team, come up with a vision and announce it to the world, and it dies with a whimper."

Technologists are a particular problem, says M. Lynne Markus, an associate professor at the Claremont Graduate School. "The soft side," Markus says, "is especially hard for IS."

Indeed, Hammer tells of IS managers who try to derail re-enginering projects by arguing that they don't conform with corporate systems architectural guidelines.

Such grim reports might be cynically dismissed as the work of consultants preying on business fears in order to sell more high-priced services. The hitch: Frontline re-engineering managers report the same problems (though rarely in public).

Indeed, IS managers and consultants say people issues — including fear of change, wishy-washy leadership, anxiety over job loss and poor communication — are more likely to cripple redesigns than poor project management, "scope-creep" and unrealistic expectations and technology issues.

"People will always resist [large] magnitudes of change," says Randy L. Christofferson, vice president of quality and re-engineering at American Express Travel Related Services Co. The New York-based firm has undertaken more than 300 re-engineering projects in the past two years.

Experts say such resistance costs corporations billions of dollars in potential savings and blunts chances to satisfy customers and expand business.

Frontline tactics

For IS and re-engineering leaders, the problem is especially serious: Like it or not, your success — even survival — often gets linked to re-engineering projects. Nobody fares well if the best, most elegant system never gets built or used.

Unfortunately, people problems are seldom overt, notes Stanton. So they're hard to detect and even harder to fix.

To minimize damage, many companies are paying special attention to the human and change-management dimensions of re-engineering.

Their tactics boil down to the following handful of simple but key principles:

- Involve as many people as possible in re-engineering efforts.
- Make constant change part of the culture.
- Tell everyone as much as humanly possible about everything as often as possible, preferably in person. Then tell some more.
- Make liberal use of financial incentives and recognition.
- Work within the culture, not around it.

"People understand early on that if they told us about their jobs, they may be losing them. They told us anyway," says Ed Brenner, senior IS consultant at Union Camp Corp.

In April, the Fort Wayne, N.J., papermaker began a two-year redesign of its procurement system. Currently, re-engineering and human resource leaders are finalizing a new policy that outlines rights and responsibilities of employees whose jobs might be changed or eliminated. Retraining and reassignment are key features, Brenner says.

"It's a matter of trust. We said to employees, 'We won't do anything dumb if you don't.'"

At TRW Information Systems and Services in Orange, Calif., David V. Skilling, executive vice president and general manager, gets buy-in by making re-engineering everyone's job. His approach: "Push leadership down into the organization, put weapons into the hands of the folks, and let them pull the trigger."

What began in early 1992 as a small circle of Skilling's direct reports has grown to more than 200 team members. The best and brightest work alongside less stellar volunteers. ("More ideas, more buy-in," Skilling explains.) There's no re-engineering czar.

Financial and travel bonuses keep motivation high, Skilling says. A biweekly newsletter and special hot line help quell anxiety over job loss.

While "pockets of resistance" remain, Skilling says, empowerment and loyalty have worked well. Since 1992, the unit, which provides IS and services to retail, finance and real estate, has cut one-third of its 6,000 workers and trimmed operating costs by 17%.

"We often worry about treating casualties fairly and forget about the survivors who have been through tough times," he says. "I'm a strong believer in all employees sharing in the success."

M. LYNNE MARKUS of Claremont Graduate School: "The soft side is especially hard for IS."

Similarly, at American Express, "We wanted everyone to see [re-engineering] as their personal responsibility," Christofferson says.

The $28 billion firm has tried to make change a daily fact of life by embedding re-engineering in its Total Quality Management program, Christofferson explains. "Line management, not staff, must lead," he says.

Devil in the details

But deep organizational acceptance requires constant selling, says Howard, whose company, Inland Steel, is halfway through a three-year project to redo its order management process. Howard spends much of his time helping users see the project's benefits.

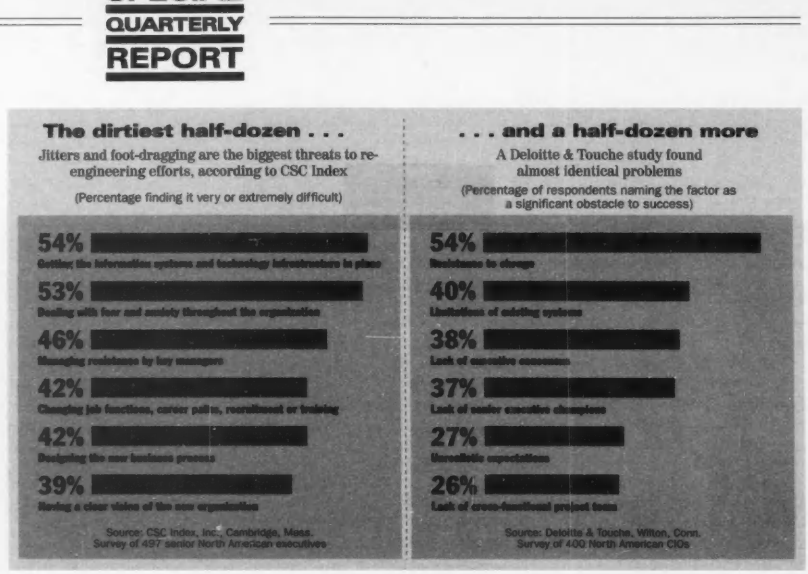
It's too big a job for one person. But he warns, "You've got to be very careful [about] who you select. They must be highly respected middle managers in the organization who have broad networks."

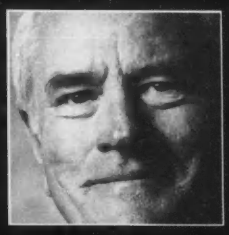
He also keeps motivation high by providing frequent deliverables, giving regular feedback on solid quantitative issues and promoting realism.

"The devil's in the details in this stuff," Howard says. "You need to help people understand there's no magic long bomb, just the down and dirty blocking and tackling."

Why do people resist change? Often because they don't understand the underlying logic, concludes Wayne Floyd, senior project manager of information services at Clorox Co.

The Oakland, Calif., firm began redoing its logistics system in 1991. Team members soon





TRW's DAVID V. SKILLING: "We often worry about treating casualties fairly and forget about the survivors."

made a surprising discovery: Many managers didn't understand basic principles underlying their functions. Says Floyd: "They didn't see the big picture or think about computer systems and software."

So a Deloitte & Touche consultant was brought in to teach a basic two-week course on logistics, inventory, accounting or manufacturing planning and other key topics. Eventually, 250 affected managers and supervisors at 25 Clorox facilities were trained.

Floyd, a 35-year IS veteran, credits the sessions with minimizing resistance and anxiety. "If we hadn't given them the educational process, we'd be continuously fighting to get things done."

Plans for keeping workers motivated needn't be complicated. For example, TRW uses simple rewards, including posting photos of team members, recognition lunches and dinners and special parking places.

Atlanta-based Lease Plan International holds small, hands-on lunch meetings to familiarize workers with new technologies, including imaging, digital fax and electronic data interchange, that will anchor its redesigned customer service system.

Dave Bush, senior vice president of information technology at the leasing and fleet management firm, says the trick is to talk straight and expose people *before* the system hits users' desks.

Fortunately, the awareness of people problems is producing a bonanza of resources for IS and re-engineering teams.

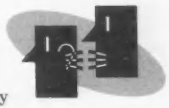
Virtually every re-engineering consultancy offers some kind of change-management services. In addition, a host of new books by Hammer, Champy and others due out this fall will tackle people problems.

"Teaming is a never-ending battle for law and order," concludes Greg Tucker, a vice president at CSC Index in San Francisco.

Ultimately, the smartest companies will enlist the rank and file as comrades in re-engineering. Those that don't can expect revolt instead of revolution. ■

Maglitta is *Computerworld*'s senior editor, corporate strategies.

Tips



When it comes to informing workers about re-engineering projects, two-way communication works best. Best methods in descending order, according to a recent CSC Index poll, include: small group, department or team meetings, large "town hall" meetings, off-site events and videotapes. Worst: memos, electronic mail and voice mail.

▲ **"The pilot system is a valuable tool for 'selling' the [re-engineered] application. Use it!," says JOHN J. DONOVAN, CEO of Cambridge Technology Group.**

How do you really think with a blank canvas? Build teamwork?

Think empty buildings and tennis shoes, advises Steve Papermaster, chairman of the board at BSG Corp., a Houston integrator.

One client, a major newspaper, was trying to get employees to envision the next-generation business. So leaders invited workers to think about what kind of organization should occupy the newspaper's new office being built next door. "Then people realized how much change had to occur," Papermaster says.

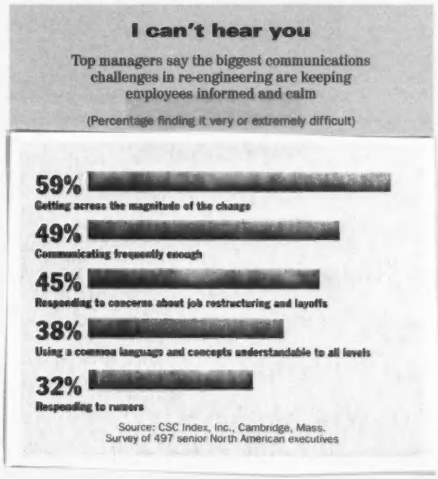
One $14 billion company had re-engineering leaders frankly air fears and concerns at a meeting. Managers then decided to show solidarity by wearing identical tennis shoes around the office. "To show they were all walking the same path," Papermaster explains.

★

OK, so it's not flashy. But surprise — simple one- or two-day workshops can be powerful in re-engineering efforts. A team studying re-engineering best practices for the Society for Information Management found on-site or off-site sessions have several benefits.

Meetings can teach re-engineering concepts for managers, methodologies for design team members, redesigned jobs for workers and personal empowerment and teamwork for everyone, say researchers Barbara J. Bashein, M. Lynne Markus, and Patricia Riley.

Meetings can also build commitment, demystify technology, select processes, identify participants, draft budgets and develop strategies to deal with resistance, re-engineering concepts for managers, methodologies for design members, redesigned jobs for workers and empowerment and teamwork for all.



★

To promote buy-in and minimize problems, take a cue from the founding fathers and draft a "re-engineering constitution," says Paul Strassmann, president of Strassmann, Inc., a New Canaan, Conn., consultancy. Before a project starts, leaders should write documents that clearly spell out accountability, roles, budgets and so on. He says he did this while overseeing a massive re-engineering at the U.S. Department of Defense. "Unless you establish governance in the political sense, you will fail," he says. "People will be going in and raiding the territory of other barons."

★

Bob McIlhattan, national director of performance improvement at Ernst & Young in Cleveland, says you should bring in change management and organizational alignment specialists from Day 1 of a project to work alongside process analysts.

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Word about PCs from Hewlett-Packard is getting around, and ratings are soaring. According to a recent CRN/Gallup survey, "Use of HP desktops in Fortune 1000 companies has doubled in the last year."[1]

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STANDARD NETWORKING FEATURES	HP VECTRA XM2 PC	HP VECTRA M2 PC	COMPAQ DESKPRO/XE	DELL NETPLEX
Advanced Bus Architecture	PCI	VL		
Integrated Networking Interface	32-bit	16-bit		
Integrated, multiprotocol Boot-ROM	X	X		
ISA Plug-n-Play Compliant	X	X	X	
Multilevel Security Features	X	X	X	X
Asset tracking	X	X	X	
PC tattooing	X	X	X	
Optional Desktop Management Software	X	X		
Bi-directional parallel port	X	X	X	X
Desktop Management Interface (DMI)[2]	X	X		

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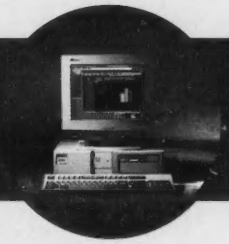
- *On-board accelerated local-bus video*
- *210-MB hard drive[1]*
- *4-MB RAM, expandable to 64-MB*
- *512 KB or 1 MB of Video RAM standard*
- *ISA Plug-n-Play compliant*
- *Desktop Power Management*



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- *210-MB, 14-ms Fast-IDE hard drive[1]*
- *32-bit Fast-IDE local-bus hard disk interface*
- *8-MB RAM, expandable to 96-MB*
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NEW!

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- *Optional integrated 10Base-T networking*
- *Multilevel security*
- *EPA Energy Star certified*
- *ISA Autoconfiguration utility (Plug-n-Play)*
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- *One available 32-bit VL-bus slot*
- *210-MB, 14-ms Fast-IDE hard drive[1]*
- *32-bit Fast-IDE local-bus hard disk interface*
- *8-MB RAM, expandable to 96-MB*

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- *Optional integrated 10Base-T networking*
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- *ISA Autoconfiguration utility (Plug-n-Play)*
- *Integrated Desktop Management Interface (DMI)[3]*
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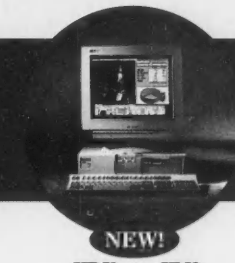
- *Standard 256-KB second level write-back cache*
- *Four mass storage shelves; four expansion slots*
- *Two available 32-bit PCI expansion slots*
- *210-MB, 14-ms Fast-IDE hard drive[1]*
- *32-bit PCI IDE hard disk interface*



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- *PCI Integrated 64-bit S3 Vision-864 graphics accelerator supporting up to 1280 x 1024 resolution*
- *Optional PCI Integrated 32-bit 10Base-T networking*
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- *Integrated 32-bit PCI SCSI-2 interface*
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- *Integrated Desktop Management Interface (DMI)[3]*
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COMPUTERWORLD

The HISTORY Of The FUTURE

As the Arpanet turns 25, its founders reunite to talk about the network that became the Internet

By Gary H. Anthes

ONE AUGUST DAY in 1968 an unusual request arrived on the desk of Frank Heart, a manager at Bolt Beranek and Newman, Inc., a high technology consulting firm in Cambridge, Mass. It asked for a proposal for the design of a network, based on packet switching, that would connect widely dispersed computers in the U.S. Department of Defense. Heart handed the document to colleague Severo Ornstein and asked for his comments. "The next morning I came in and threw it back on Heart's desk," Ornstein recalls. "I said, 'Sure we could build such a thing, but I don't see why anybody would want it.' It was one of the biggest bloopers ever."

But build it they did. The result was the Arpanet, forerunner of today's global Internet. Twenty-five years later, Bolt Beranek and Newman sponsored a bash at which Ornstein and more than a dozen of the pioneers who built the original network gathered to celebrate its 25th anniversary. *Computerworld*'s Gary Anthes met with some of them at the event, called "The History of the Future," in Boston last month and asked them what we might expect from the Internet of the future. Here's what they said.

CW: What is the future of the Internet? Will it evolve into the so-called "information superhighway?"

History of the future, *page 104*

WHO ARE THEY?

Ben Barker: senior vice president and chief technology officer at Bolt, Beranek and Newman (BBN). In 1969, he designed hardware interfaces for the Arpanet.

Roland F. Bryan: founder, president and chief executive officer of ACC Systems in Santa Barbara, Calif. Bryan was principal investigator at the University of California at Santa Barbara, one of the first Arpanet sites.

Stephen Crocker: vice president at Trusted Information Systems, Inc. A graduate student at UCLA in 1969, Crocker helped design the original suite of protocols for the Arpanet.

Robert Kahn: founder and president of the Corp. for National Research Initiatives. An Arpanet pioneer at BBN in the late 1960s, Kahn was an Internet architect and co-inventor of TCP/IP while at the Advanced Research Projects Agency (ARPA) in the 1970s.

Leonard Kleinrock: chairman of the Computer Science Department at UCLA. He developed many of the principles of packet switching in the early 1960s.

Severo Ornstein: retired. At BBN in 1969, he had responsibility for packet switch hardware design. He founded Computer Professionals for Social Responsibility.

Lawrence G. Roberts: president of ATM Systems, a division of Connectware, Inc. He managed development of the Arpanet at ARPA in the late 1960s and early 1970s.

Barry D. Wessler: CEO of Plexsys International Corp. A member of the Arpanet development team at ARPA in the late 1960s.

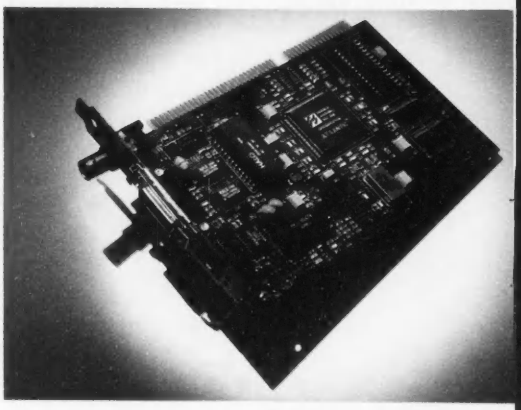
MILESTONES IN COMMUNICATIONS HISTORY

30,000 B.C.	12,600 B.C.	3,500 B.C.	3,200 B.C.	105 A.D.	1440 A.D.	1729	1831	1838	1866	1876	1928	1969	1972
Crude Cro-Magnon lunar calendar used for hunting	Lascaux cave paintings created	Sumerians develop a system of writing	Egyptians use first ink	Ts'ai Lun invents paper	Johannes Gutenberg invents movable type	Electric pulse first sent over wire	Joseph Henry builds first electromagnetic telegraph	Samuel Morse develops Morse code	Transatlantic cable is laid	Alexander Graham Bell patents first telephone	First telephone programming begins	Arpanet, forerunner of the modern Internet, is born	Pong video game is overnight success

Continued on page 104

DAVID FLANERTY

On Ethernet LANs, the complete connection from Acer®



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The HISTORY Of The FUTURE

CONTINUED FROM PAGE 101

KLEINROCK: The Internet may well be part of the information superhighway but not nearly all of it. The Internet lacks a number of needed features: a proper security framework, multimedia and a much richer set of qualities of service. Also, middleware is lacking significantly — accounting, billing, name servers, directories and so forth. But these can be added to the Internet incrementally.

ROBERTS: The Internet will be upgraded to ATM [Asynchronous Transfer Mode] as the base network to support the increased bandwidth. Today's voice net supports 600G bits, and the nation's data net will grow to 3,000G bits by 2020. Putting ATM under the Internet is very easy due to layered protocols and will be done within two years.

Forget about building your own network. The Internet is by far the best buy for a commercial user. It offers the largest network at the lowest cost.

– Lawrence Roberts

WESSLER: There is a risk that the current Internet is overhyped for its current range of information services. I expect some dissatisfaction will result when other commercial services, such as America On-Line, provide a more reliable information source.

But I am confident that 10 years from now we will still use the Internet. What else will be around in 10 years is the insight that makes millionaires.

CW: How do you see the Internet evolving for commercial use?

CROCKER: The network will be the medium of choice for communication within a single company. The network will also be used for interenterprise and customer-to-merchant interactions. Some of these will involve delivery of goods and services directly over the Internet; other uses will be in support of goods and services delivered conventionally.

ROBERTS: The corporate decision today should be: Forget building your own network. The Internet is by far the best buy for a commercial user. It offers the largest network; it has the lowest cost.

Uses will be all voice, data and video communications including the listing of all products and services. These listings — not advertisements — will totally change the way industry and the public search for and buy products.

There will be a huge increase in video on the network. In the corporation, the emphasis will be on video messaging. Computers are currently used for two things: computing and nonreal-time messaging. In the future, they will be used for a third thing: real-time communications.

BARKER: In three to five years, there will be millions of organizations, mostly small commercial organizations, doing their mainline business over the Internet as naturally as they use the fax today.

In a couple of years, it will be the default expectation that the little restaurant on the corner will have an [Internet directory listing]. As the technology evolves to the point that this can be used to place takeout orders or make reservations, such connectivity will become a prerequisite to survival. The same argument applies to most any business. Add security, credit-card charging and the L. L. Bean catalog, and voila — electronic commerce.

"Yellow Pages" type advertising will be a very effective way of reaching prospects. For example, all those who sell widgets can list their up-to-the-minute pricing for various sizes and quantities of widgets. Those who want to buy widgets can find the best price or submit an offer at some lower price, much as the stock market works today, but based on a software package running on an inexpensive workstation connected anywhere on the Internet.

In three to five years there will be millions of organizations, mostly small commercial organizations, doing their mainline business over the Internet as naturally as they use the fax today.

– Ben Barker

Temporary labor markets will emerge on the same basis. As corporations continue to downsize and move toward "virtual" corporations, more and more of the work force will contract on a job basis using this sort of electronic market.

CW: Will commercial users, including advertisers, harm the Internet or strengthen it?

ROBERTS: Commercial users, putting their product information on-line, will greatly strengthen the Internet. Users who send junk mail hurt it but are easily taken care of since return hate mail is easy.

WESSLER: Advertising agencies have some very creative people. Eventually they will adapt to the 'net culture and find ways of getting the message through. Thank goodness it probably won't take the form of TV advertising.

CW: Many would-be commercial users avoid the Internet because of security concerns. Are those concerns well-founded?

ROBERTS: No. Security is a problem, but firewalls and source verification using public key [encryption] techniques will take care of this issue. The need is greater than the risk.

BARKER: Security concerns on the Internet are painfully real. Unfortunately, too many of the Internet access service providers simply provide a port and leave it up to the user to deal with security issues. That may have made sense in connecting a student's PC, for which network security is not a significant concern, but is totally unacceptable for a hospital or a law firm with sensitive information on their networks.

There are solutions. A variety of firewall offerings are available today, and improved offerings will be appearing. Privacy-enhanced mail offerings are also available to carry messages securely across the 'net and to verify the authenticity of the sender.

But none of these technologies is adequate to address the problem. Professional analysis is required to understand users' technical and business environments and determine the appropriate security approaches.

CW: What are the most pressing technical issues facing the Internet over the next two to five years?

KLEINROCK: Open access is the most pressing issue. [See related story page 105.]

CROCKER: The transition to the next generation [Internet Protocol] may be the dominant issue during this time. Part of the design of the new protocol includes attention to security, mobility, real time and multicast, so there are really several different capabilities wrapped up in this transition. Substantial evolution of products, services and organizations will be required.

KAHN: It's not clear in the National Information Infrastructure there's going to be anyone around who knows enough about all the pieces to make something work or, if something goes wrong, to fix it.

MILESTONES IN COMMUNICATIONS HISTORY

1975	1977	1978	1979	1980	1981	1982	1983	1985	1988	1993	1995
First digital watch sold	Apple II, Commodore PET and Tandy TRS-80 microcomputers introduced	*The New York Times* completes conversion to electronic production	CompuServe and The Source on-line services begin operation	Pac-Man introduced	IBM PC debuts	The computer is named *Time* magazine's Man of the Year	First inner city fiber-optic phone system installed; First CD player sold	CD player sales surpass turntables; Desktop publishing is born	The Internet comprises 33,000 host computers	The Internet comprises 1.8 million users	Info Expo and the Technoid, Cyberpunk & Propellerhead Ball are first staged

Source: Info Expo, Raleigh, N.C.

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23. Dir./Mgr. Sys. Development, Sys. Architecture
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41. Engineering, Scientific, R&D, Tech. Management
60. Sys. Integrators/VARs/Consulting Management
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12. Vice President, Asst. VP
13. Treasurer, Controller, Financial Officer
DEPARTMENTAL MANAGEMENT
51. Sales & Mktg. Management
70. Medical, Legal, Accounting Management
OTHER PROFESSIONAL MANAGEMENT
80. Information Centers/Libraries, Educators, Journalists, Students
90. Other Titled Personnel

3. Do you use, evaluate, specify, recommend, purchase: (Circle all that apply)

Operating Systems
(a) Solaris (e) Mac OS
(b) Netware (f) Windows NT
(c) OS/2 (g) Windows
(d) Unix (h) NeXTstep

App. Development Products ❑ Yes ❑ No
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22. Dir./Mgr. Network Sys., Data/Tele. Comm., LAN Mgr. /PC Mgr., Tech Planning, Admin. Services
23. Dir./Mgr. Sys. Development, Sys. Architecture
31. Programming Management, Software Developers
41. Engineering, Scientific, R&D, Tech. Management
60. Sys. Integrators/VARs/Consulting Management
CORPORATE MANAGEMENT
11. President, Owner/Partner, General Manager
12. Vice President, Asst. VP
13. Treasurer, Controller, Financial Officer
DEPARTMENTAL MANAGEMENT
51. Sales & Mktg. Management
70. Medical, Legal, Accounting Management
OTHER PROFESSIONAL MANAGEMENT
80. Information Centers/Libraries, Educators, Journalists, Students
90. Other Titled Personnel

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(a) Solaris (e) Mac OS
(b) Netware (f) Windows NT
(c) OS/2 (g) Windows
(d) Unix (h) NeXTstep

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Networking Products ❑ Yes ❑ No

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The HISTORY Of The FUTURE

The challenge is how to prevent that scenario from becoming the showstopper.

BARKER: All aspects of the information superhighway, whether it's 500-channel TV, movies on demand, interactive TV, multimedia applications on the Internet, require a great deal more bandwidth and switching capacity than the current infrastructure can support.

Advertising agencies will adapt to the 'net culture and find ways of getting the message through. Thank goodness it probably won't take the form of TV advertising.

– Barry D. Wessler

There is a stunning consensus that cell-switching, embodied in the emerging ATM standards, is the required infrastructure for this revolution. It is emerging as the appropriate backbone technology to support a variety of user services such as frame relay. Once corporations are connected to ATM backbones for inexpensive broadband data services, the [private branch exchange] vendors will provide ATM interfaces, allowing corporate voice traffic to transition. As Internet applications, cable and video-on-demand and telephone services all transition to ATM networks, the distinction between them disappears.

BRYAN: In order of importance: protection of resources from external access and destruction; security and privacy of information; methodology to increase bandwidth to accommodate growth; elimination of unwanted traffic or intrusion; and keeping the costs down.

CW: What are the most pressing business issues facing the Internet over the next two to five years?

BARKER: Too many Internet access providers are providing service which does not meet the needs of the new wave of incoming users in two key areas: help in getting connected and diagnosing problems once connected. As a result, too many of the people getting connected tell horror stories of how difficult it was, of how far short of their expectations it fell and of security breach nightmares. Once connected, most service providers are unable to diagnose users' problems that fall outside of the provider's own network. This level of support is clearly inadequate for the kind of mission-critical commerce that the Internet will be carrying over the coming few years. The situation has to change.

KAHN: Protection of intellectual property is key. Companies won't try selling [electronic products] until they understand how they can survive in that world. If you get something over the Internet, how do you know that the person who gave it to you has a right to it? How do you know it's the real thing? If you scan in a photograph and use it in your newsletter, how do you know you are not going to be sued for $1 million by someone saying you didn't have permission to use it? These are really big-ticket items and serious questions.

CW: What are the most pressing social issues facing the Internet over the next two to five years?

ORNSTEIN: I'd like to lift us out of the warm bath of self-congratulation in which we have been wallowing and speculate about the future. In my bleaker view, what was once our little pride and joy will be taken over by commercial institutions that have little interest in the kind of interpersonal and intergroup communication that has thus far dominated network usage. Commercial exploitation of all sorts will be forced into every nook and cranny, just as it is on today's television.

CROCKER: The network makes it possible to have complex relationships with individuals and groups of people all over the globe. The workplace and even the home may not be the focal point of one's social interactions. Virtual corporations will come into existence on a regular basis. None of these changes will be trouble-free.

ROBERTS: The network eliminates the need for big organizations. Individuals can get on, create information and sell it without the need for any company to support them. This totally changes the options for retired people and those who hate working for someone else. This has a major impact on the structure of the information industry, including newspapers, etc.

BARKER: The fact that the Internet is also used for activities inappropriate for kids, such as the exchange of pornography. It is a statistically minor issue, and technical improvements will help, but ultimately the responsibility for control rests with parents and teachers. The principal risk is that the issue will receive undue attention in the press and stimulate technophobic politicians to impose draconian restrictions on Internet access.

BRYAN: One aspect that might curtail the magic of the Internet is if some regulatory group selects the wrong way to get rid of unwanted traffic. The Internet grew because it was an open and available resource, albeit mostly available to the "insiders" until recently. Now, if not carefully done, we could put so much of a damper on the overall service as to make it difficult to use.

CW: What role should the government play in the roll-out of the information superhighway?

KLEINROCK: The government can help encourage the Open Data Network by providing various incentives, be they tax incentives, spectrum use, rights of way, depreciation schedules or their own purchasing policies. [See related story below.]

ORNSTEIN: The government is clearly going to have to step in in some regulatory fashion. If it's timid regulation, as in television, it's not going to be very effective. If the government addresses it more as it does telephone communications, then it can be more in the public interest. If not the Federal Communications Commission, some equivalent kind of organization could help impose some order in the public interest, rather than turning it into a free-for-all in the open market.

BARKER: The absence of regulation has been a key reason for the creative energy and rapid advancement which has characterized the Internet. If the government moves to regulate it in response to the competitive environment brought on by the success of the Internet, this dynamic energy will be lost. ■

Anthes is *Computerworld*'s senior editor in Washington.

Opening the Info Highway

In May, a National Research Council committee described its concept for an Open Data Network for the coming National Information Infrastructure. The panel outlined a four-layer network architecture containing a new layer called the "bearer service."

The bearer service is intended to provide a critical separation between the underlying network technology, such as ATM, and the high-level services seen by users. The separation of lower- and higher-level services is one way to ensure an open network architecture, the committee said.

Leonard Kleinrock: 'Market forces alone can't be relied on to come up with an open architecture'

Leonard Kleinrock, chairman of the committee, said market forces alone cannot be relied on to come up with the Open Data Network architecture — one that is open to users, service providers and change.

"If we don't provide for the Open Data Network, we may end up with more than one network," Kleinrock said. "We may end up with an entertainment network, an Internet for the science and research community and one for commerce and business, and they may or may not be able to talk to each other.

"That would be a disaster. The industry cannot afford to deploy three networks. Just the access portion is going to cost $50 billion — 50 million homes at $1,000 each," he said. What's more, it's impractical for users, he added.

Kleinrock said the challenge is convincing the industry it will be better off in the long run with the open architecture, despite a somewhat higher initial investment.

"There are two forces pushing against what we are asking for," he said. "One is plain old competition, and that means proprietary architectures. We know that failed in the past; look at SNA and DECnet. The second is cost. We don't know the incremental cost to provide for openness."

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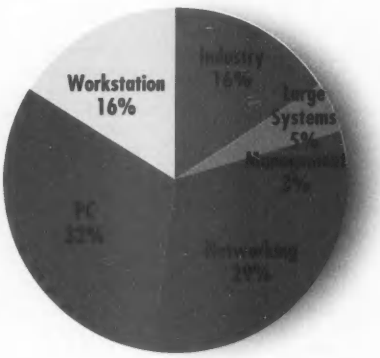

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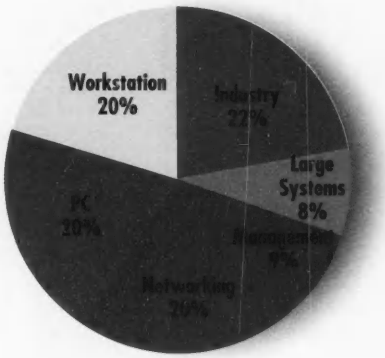

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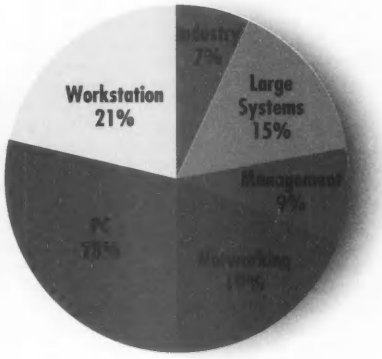

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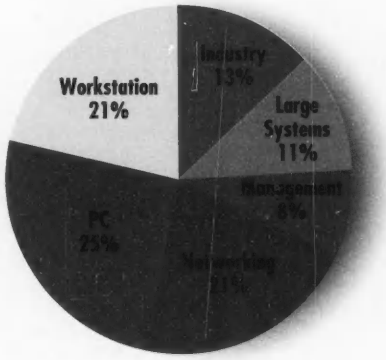

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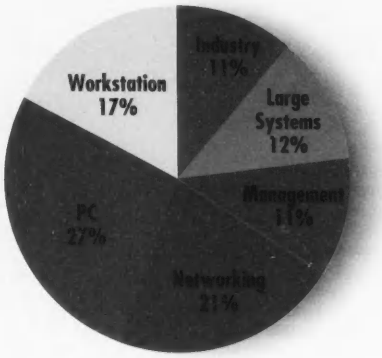

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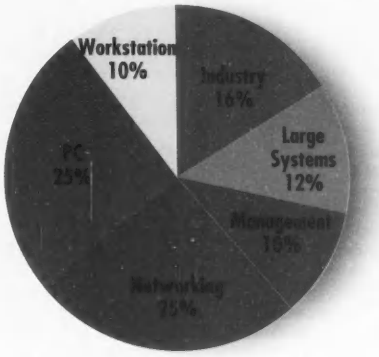

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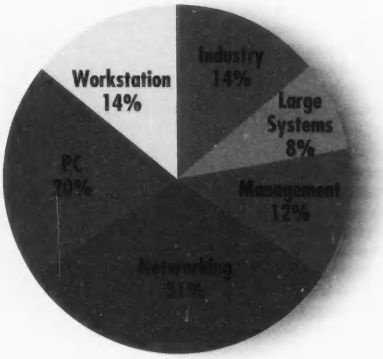

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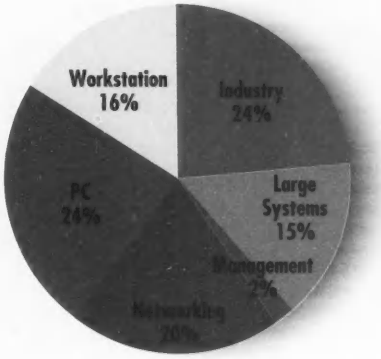

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"...Computerworld Direct Response Cards consistently generate the highest profits of any deck we've tried."

- Mary Cooper
Vice President
cfSOFTWARE, Inc.

A software developer based in Chicago, cfSOFTWARE has been providing communications solutions to computer professionals in the IBM and compatible arena for over a decade. Because *Computerworld* appeals to a large base of both mainframe and PC professionals, Vice President Mary Cooper just recently expanded the company's *Computerworld Direct Response Card* advertising to include all three of their communications products.

"To generate sales for Across the Boards, a communications toolkit for developing cooperative applications, and pcMAINFRAME, a generalized micro-to-mainframe file transfer system, cfSOFTWARE has been advertising in *Computerworld Direct Response Cards* almost from the very start. Now, based on our past success, we've also started to advertise pc2POWER, our newest file transfer system. Since all of our products facilitate mainframe-to-micro communication, we need to reach IS managers and technical support professionals on the mainframe side as well as end users on the PC side. That's why *Computerworld Direct Response Cards*, with their large audience of buyers most apt to need our products, are one of our primary advertising vehicles.

"Clearly, *Computerworld Direct Response Cards* take the 'hit or miss' out of advertising by qualifying our audience for us. We call it our high-profile deck because we not only get high visibility and a high rate of response but also convert a high volume of leads into sales. With their excellent cost per lead, *Computerworld Direct Response Cards* consistently generate the highest profits of any deck we've tried.

"In fact, we can always tell when our *Computerworld Direct Response Card* advertising hits because of the sudden surge in sales activity. Business really starts hopping with more phone calls and more mail. It's a real morale builder! But most importantly, every time we advertise in *Computerworld Direct Response Cards* we receive well over 100 leads. Sometimes we even get responses six months later, so we know *Computerworld Direct Response Cards* have a long shelf life that gives cfSOFTWARE valuable exposure for building awareness and share of mind over the long term.

"While reasonable rates for color and multiple insertions add considerable appeal, the large quantities of quality leads generated by every card we run is our key incentive for stepping up cfSOFTWARE's advertising schedule in *Computerworld Direct Response Cards*."

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Computer Careers

Trainer's CORNER

By David A. Kelly

If you've never used sleight of hand during a training session, it's time to add a few new training techniques to your repertoire.

To keep the competitive edge, trainers must continually integrate new techniques into their teaching methods. "It's a dynamic industry, and trainers will have to expand their own horizons over the next few years," says Sharman Montalbano, a technical consultant at Chubb Advanced Training in Parsippany, N.J. Instructors must move past teaching the mechanics of the software and focus on using the applications more effectively, experts say.

Yet it's easy to be lulled into the role of the comfortable trainer. Tried-and-true approaches may still work, but adding a few new attention-getters can't hurt. Some experts suggest using magic. "I've found that a simple card trick broken into two parts, the first half before a break and the rest after the break, really captures the students' attention and allows me to move into the training session," says David Hale, vice president of Computer Consultant's Network, a training company in West Chester, Pa.

The following are some of the latest tips, tricks and techniques to help instructors stay on top of the game:

• **Develop verbal water treading.** Getting students to return from breaks on time is always difficult. Instead of penalizing prompt students by waiting for late students or penalizing late students by starting on time, develop a technique known as verbal water treading. Bob Mosher, director of trainer development at Logical Operations, Inc. in Rochester, N.Y., describes it as a five-minute anecdote that's not directly related to the class but is helpful and interesting. "Keyboard shortcuts are very effective water treads. All students love them," Mosher says. "They are by no means mission-critical if you miss them, but they are important enough so they encourage promptness."

• **Break out of the classroom.** Not all learning has to be done during training sessions. Elliott Masie, president of the Masie Center in Cambridge, Mass., suggests making an audiocassette for students. "I wouldn't start talking about specific keystrokes on the tape, but you can talk about the major aspects of a package or the main topics of the course," Masie says. The tape should reinforce techniques studied in class.

• **Deputize students.** When the class ends, ask students to write letters to the incoming class. For example, the letters could say, "I've just taken a spreadsheet macros class, and here is something I found useful, confusing, easy, hard, etc." Collect the letters and copy and distribute them to students in the next class. Because the information is coming from co-learners, students process it differently, Masie says.

• **Become a traffic cop.** Students may become confused or lost but may not have specific questions to ask. To avoid confusion, Masie suggests giving each student a green, yellow and red dot and some way to display the dots. If students are comfortable with the material, they display the green "light"; if they're unsure or uncomfortable with the information, they can put up the yellow "light"; and when they're lost, they can display the red "light." "Without some technique like this, instructors don't get the feedback when people are in the yellow area," Masie says.

• **Train at their desks.** Unlike structured training classes, real life doesn't follow lesson plans. If possible, make arrangements for an additional hour of training with each student. By following up individually, the trainer can answer specific questions and really make a difference in the student's comprehension of the material. "Follow-up training gives real productivity benefits," says Christine Van Valkenburg, president of Computer Savvy, Inc. in Fort Lauderdale, Fla. "It takes a lot of time, but it is the best money a company can spend."

• **Destroy something!** Hale recommends making sure your classes don't run smoothly. Make students think about the material and apply themselves. "If I'm teaching a course on E-mail, I rename a communications link when the students are on break, and they have to find why the mail isn't being delivered. It really gives them ownership of the material."

With a little bit of magic — or a little taste of destruction — you can help your students master most material. ■

Kelly is a free-lance writer in Newton, Mass.

SIDELINES

Resume gaps

Senior-level managers can be out of work for nearly a year before it begins to hurt them professionally, according to 150 executives surveyed. The mean time out of work was 11 months.

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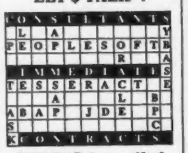

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VITAL SIGNS POSITIVE in health care

By Julie Hart

HEALTH CARE PROVIDERS ARE HIRING AT ALL LEVELS, BUT THE BIG DEMAND IS FOR DATABASE INTEGRATION SKILLS

"Managed care is growing like gangbusters," says Erica Drazen, a vice president and director at Arthur D. Little in Cambridge, Mass. "As a result, there is tremendous hiring going on in IS at all levels. And the biggest opportunities are within health care provider organizations."

In fact, as more health care providers move toward continuum care from birth to death and the open systems that can pull it all together, they demand experts in two critical areas: relational databases and networking technologies.

> "We're spending 60% of our IS staff dollars on people who know the business side" of health care, says Ed Kopetsky, senior vice president and chief information officer at Sharp Healthcare in San Diego.

Information systems staff must know how to merge legacy databases with new client/server databases — without disrupting workflow. Required skills include a robust background in relational database technology as well as a clear understanding of data integrity and systems security issues as they relate to health care. For instance, IS departments must ensure that the systems they build are easily updated by staffers, are safe from corruption and accessible to authorized personnel.

In addition, they must know the latest methods for linking everything together. This includes a practical knowledge of bridges, routers, cabling, protocols and operating systems. "Networking is a major issue," says Tom Fleishman, vice president and director of information technology services at Kaiser Permanente in Pasadena, Calif.

But understanding how to implement technology isn't enough, says Ash Dave, vice president of information services at Cedars-Sinai Health System in Los Angeles. "We want people who have a good knowledge of the types of health care data that need to be collected," Dave says. IS staff who don't understand users' needs are likely to wreak havoc when creating patient databases.

Drazen agrees that people skills are critical in building an integrated continuum care information system. "First, the IS person needs to have an understanding of the business," Drazen says. "Then, he needs to know technically how to make it happen."

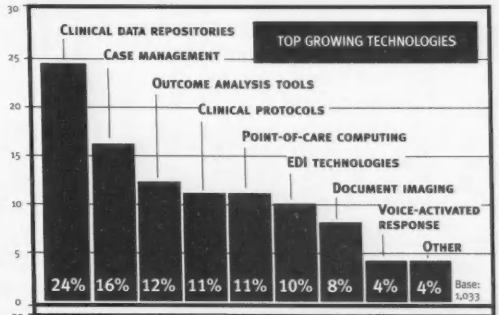
Know-how is top priority

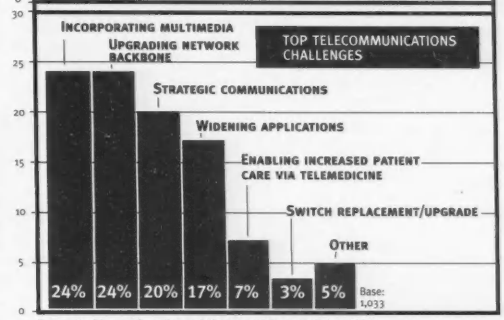
This is true for Sharp Healthcare in San Diego. "Right now our biggest goal is to integrate databases across our organization," says Ed Kopetsky, senior vice president and chief information officer. While technical skills are key, they come in second to business know-how.

Meanwhile, "there are a growing number of opportunities for people who are interested in crossing over" to the health care industry, says Michael Ballenger, a partner at Heidrick & Struggles, Inc., a global recruiting firm in San Francisco.

In fact, hiring in the health care industry is expected to be even stronger in the next six months than it is today. "Eighty percent of health care organizations are still living in yesterday's environment," Drazen says. "But that will change continuously as more hospitals and other health care providers merge to provide integrated delivery of services." ■

Hart is a free-lance writer in Sunnyvale, Calif.





Source: Healthcare Information and Management Systems Society, Chicago

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Source: *Computerworld* Salary Survey

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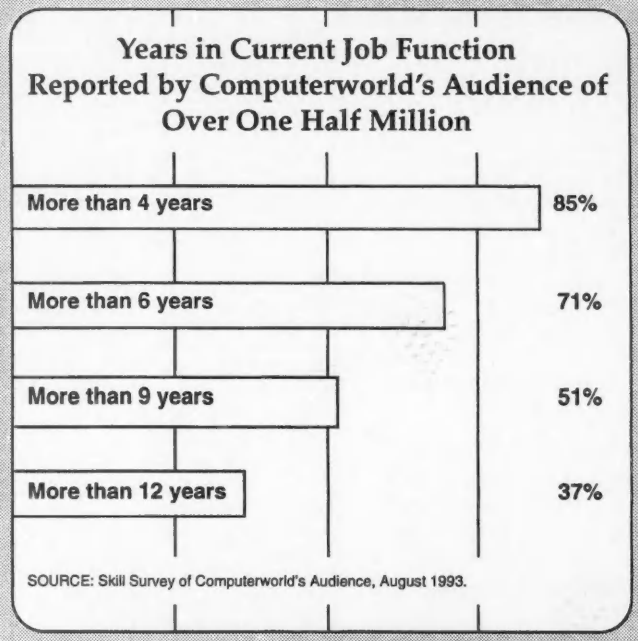

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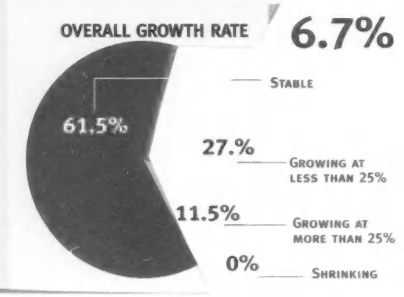

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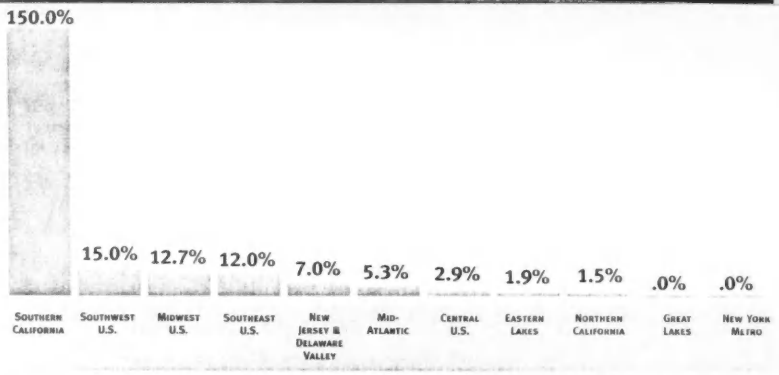

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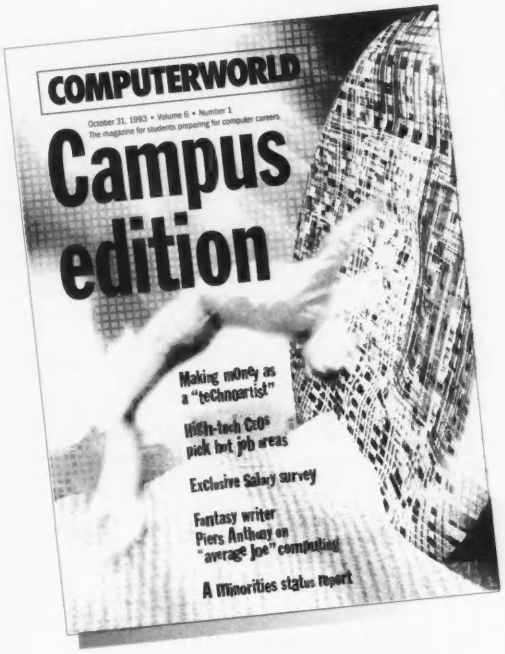

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Simple yet savvy

Four adjustments add more flexibility to your software site licenses

By Dennis S. Deutsch

Your eyes may glaze over when you read the following: "Licensee may use the software only at the site listed above as the business address of licensee. Use at any other site is strictly prohibited." But you can't afford to ignore its message.

When this clause appears in a software site license, your company can't legally access the software from an off-site satellite office. Your sales force shouldn't download the software onto their laptops, and you're not supposed to move the software to a new office or temporary site in the event of a disaster.

While some vendors are more flexible than others when interpreting such contracts, that's the exception, not the rule. In fact, site license restrictions are more aggressively enforced than ever before.

These familiar warnings continue to fall on deaf ears, however. Too many of my clients still tell me they have great relationships with their vendors and won't have a problem in such an event. Unfortunately, most regret not heeding my advice: Even if you have a good relationship with your vendor, your contact people may not be there tomorrow. Be prepared, and negotiate a contract that protects your interests. The following changes to your next software site license can make a difference:

• **Define the site:** Ask yourself if there is anything unusual about the way your company needs to use the software. If you have a multisite office and intend to use the software at each location, do not define the site as the address for the corporation identified in the preamble to the contract, as is the usual case.

Consider defining the site as "the offices of ABC Corp." Or use "the computer centers of ABC Corp." This permits the "site" to incorporate multiple locations.

• **Expand the permitted use:** Know ahead of time that your 300 sales representatives will take the software on the road. This is at the heart of a key message to chief executive officers — know your users. This factor should be worked into your license agreement. For example, after the contract clause noted above, add language that will satisfy your particular need. The following may be appropriate: "Notwithstanding the above, licensee shall be permitted, without any additional fee, to make and download a copy of the software for each salesperson to use on his or her notebook while not using the software on the site."

• **Allow for disaster recovery:** It's bad enough that a flood wipes out your building; at least ensure that you can use the software at your backup site or even at your employees' homes. The contract must allow you to keep a copy of the software off-site and make copies as needed for use at various backup sites in an emergency. The following clause should suffice: "In the event of a disaster at the site, licensee shall be permitted, without any additional fee, to make such copies of the software and remove it off-site for use in accordance with the terms of this license agreement as are necessary for the smooth continuation of business."

• **Plan for the future:** Imagine if three years ago you signed a long-term site license that didn't allow for upgrades to Windows and distribution on notebooks or networks. You would have to renegotiate or rely for years on the software and upgrades provided for under this agreement. In that time, the composition of your hardware might change, too.

In the next few years, new laptops will be manufactured with wireless remote capabilities. Don't sign a site license today that precludes your company from taking advantage of new technology. Anticipate where your company's computing capabilities will be in the next five years and negotiate today based on that planning. The following language may be appropriate: "Vendor and vendee recognize that vendee may be utilizing the software in conjunction with wireless or remote computers. Such uses of advanced technology shall be permissible without any additional fee."

Will you succeed in negotiating these clauses into your licenses? Naturally that depends on your negotiating skills and your vendors. When possible, rule with your wallet and walk away from inflexible vendors. We all know who they are, and like any company, they are moved by the marketplace.

Most vendors are receptive to structuring a contract that lets you acquire their products, but your approach is important. Keep in mind that you have more leverage if several vendors can meet your requirements and you negotiate your terms at the time of acquisition. ■

Deutsch is a partner at Ferrara Turitz Harraka & Goldberg in Hackensack, N.J. He specializes in computer law.

Getting your way

We tend to forget the easiest rules when negotiating a better deal.

The more time the salesman invests in you, the more flexible he'll be with respect to the contract.

Explain to the vendor that you are also talking with other vendors or, if practical, that you are considering doing the project in-house.

Find out the vendor's fiscal year. You'll have more success negotiating at the end of a quarter or year than at the beginning.

Until you're ready to sign, keep telling the vendor you aren't convinced their product will solve the problem. Vendors will try to make the terms more attractive it they aren't certain they have the sale.

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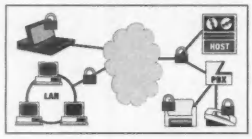

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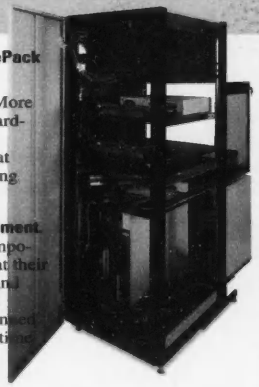

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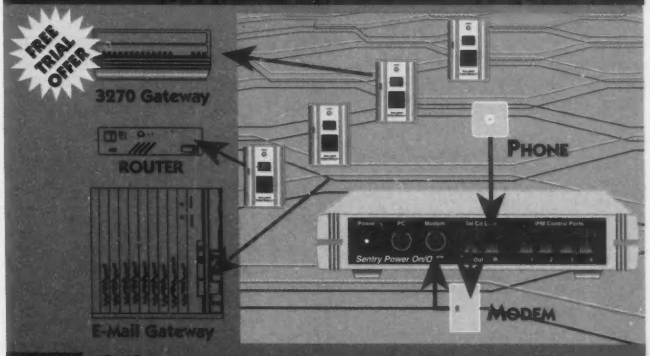

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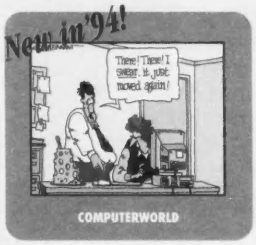

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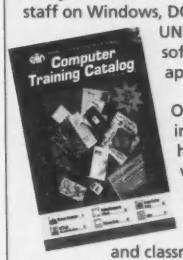

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A Pre-Proposal Conference is Scheduled for October 18, 1994, 10:00 A.M., at 130 Livingston Street, Conference Rooms 5 & 6, on 5th Floor, Brooklyn, N.Y. 11201. Prospective bidders who desire to attend shall notify the Procurement Manager no later than noon of the day prior to the scheduled event.

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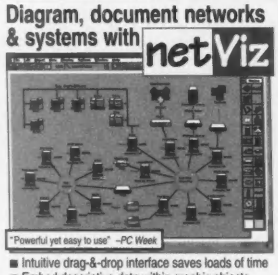

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Sept. 30 Stock Ticker

Gainers

Percent

Proteon Inc.	56.7
Platinum Software	25.0
Group I Software	25.0
Weitek	21.4
Intersolv Inc.	20.8
Parametric Technology	16.8
Trinzic Corp.	16.1
McAfee Associates	14.7

Dollar

Peoplesoft	5.06
Powersoft	5.00
Intuit Inc.	4.88
Parametric Technology	4.75
Compuware Corp.	3.50
Xilinx	3.38
ITT Corp.	3.00
Cabletron Systems	3.00

Losers

Percent

Cognitronics Corp.	-15.0
Radius Inc.	-13.8
Brock Control Systems Inc.	-13.2
Cheyenne Software Inc.	-12.8
Telebit Corp.	-12.5
Easel Corp.	-12.1
System Software Assoc.	-11.1
Ross Systems	-10.3

Dollar

Texas Instruments	-4.25
Chipcom Corp.	-3.50
Sybase Inc.	-3.50
Micron Technology	-3.38
Storage Technology	-2.63
Sungard Data Systems	-2.00
Scientific Atlanta Inc.	-1.88
Compaq Computer Corp.	-1.75

Trends

EMC bytes into storage market

With many mainframe vendor stocks stale to investors' palettes, EMC Corp. (EMC), a manufacturer of mainframe disk arrays, is a treat. EMC sells high-performance disk arrays featuring both a flexible architecture that can connect to different mainframe hosts and high-speed access to data that is faster than typical disk drive speeds.

Phillip Rueppel, an analyst at Alex. Brown & Sons, Inc. in Baltimore, sees EMC as a market leader with very little competition. "We are positive on the stock," Rueppel said. "EMC is really all alone in very high-performance areas and has the best capacity."

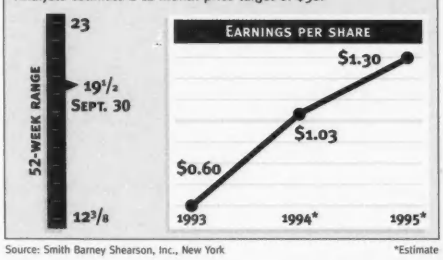
Barry Bosack at Smith Barney Shearson, Inc. in New York, said he thinks EMC can turn to the enormous base of installed mainframe users requiring better access to data or additional storage space. And with competitors that have yet to offer similar products, EMC is in a good position to garner more market share. But competition is expected to be fierce. EMC and **Storage Technology Corp.** have filed suits against each other. Stiffer competition is expected from **IBM**, Storage Technology, **Hitachi Data Systems Corp.** and **Amdahl Corp.** in the coming months, but Bosak said EMC will weather the storm. "EMC still has the Porsche as far as speed," he said.

And they also have an eye to the future. If anything, "EMC has picked up momentum," Bosak said. He noted that with its recent purchase of Magna and Epoch, EMC will be able to offer a storage product for the client/server market and at the same time provide an avenue for high growth instead of just commodity disk drives in the mainframe arena. "The stock is driven by the fundamentals," Rueppel said. "EMC has the broadest product line for the mainframe disk drive segment."

— Tim Ouellette

EMC Corp.

Since July, EMC shares have risen and neared its 52-week high. Analysts estimate a 12-month price target of $30.



Source: Smith Barney Shearson, Inc., New York

*Estimate

Exch	52-Week Range			Sept. 30 3 PM	Wk Net Change	Wk Pct Change
Communications and Network Services						**UP 1.03%**
OTC	39.75	13.69	3 COM Corp. (H)	37.88	0.63	1.7
NYS	44.25	36.25	AMERITECH Corp.	40.38	-0.50	-1.2
NYS	61.38	49.50	AT&T	54.13	0.00	0.0
OTC	26.50	12.75	Banyan Systems Inc.	17.50	0.75	4.5
NYS	69.13	49.00	Bell Atlantic Corp.	53.00	-0.25	-0.5
NYS	63.88	53.00	Bellsouth Corp.	56.25	0.75	1.4
NYS	21.50	8.38	Bolt, Beranek & Newman	17.13	1.00	6.2
OTC	15.75	9.00	Brooktrout Technology	10.25	-1.00	-8.9
NYS	53.00	33.06	Cabletron Systems	47.88	3.00	6.7
OTC	43.00	10.00	Centigram Communications	16.38	1.38	9.2
OTC	60.25	31.50	Chipcom Corp.	53.00	-3.50	-6.2
OTC	40.75	18.75	Cisco Systems Inc.	27.13	2.63	10.7
OTC	18.38	9.00	Compression Labs Inc. (L)	9.13	-0.75	-7.6
OTC	12.38	5.13	Computer Network Tech.	7.63	-0.38	-4.7
OTC	33.75	8.50	CrossComm	9.75	0.25	2.6
OTC	3.00	1.50	Data Switch Corp.	2.25	-0.25	-10.0
OTC	36.56	17.88	DSC Communications	29.00	0.50	1.8
NYS	30.25	8.25	General Datacomm Inds.	28.25	-1.25	-4.2
NYS	39.88	29.50	GTE Corp.	30.63	0.25	0.8
NYS	95.97	78.63	ITT Corp.	83.63	3.00	3.7
OTC	29.63	21.38	MCI Commmunications Corp.	24.88	1.25	5.3
OTC	8.25	2.50	Microcom Inc.	7.63	0.25	3.4
OTC	24.00	11.25	NetManage Inc.	21.00	0.00	0.0
OTC	7.25	4.00	Netrix Corp.	4.50	-0.25	-5.3
OTC	8.75	3.25	Network Computing Devices (L)	3.75	0.00	0.0
NYS	14.88	7.38	Network Equipment Tech.	14.38	0.38	2.7
OTC	23.38	12.25	Network General	19.63	1.88	10.6
OTC	9.63	6.38	Network Systems Corp.	7.25	-0.75	-9.4
OTC	72.25	26.50	Newbridge Networks Corp.	31.88	0.00	0.0
NYS	37.75	23.88	Northern Telecom Ltd.	35.13	-0.75	-2.1
OTC	26.63	13.38	Novell Inc.	14.75	0.25	1.7
NYS	46.50	33.25	Nynex Corp.	38.38	1.25	3.4
OTC	30.00	15.50	Octel Communications Corp.	20.25	-0.88	-4.1
OTC	20.00	9.00	Optical Data Systems Inc.	18.75	1.00	5.6
OTC	7.50	3.13	Penril Data Comm Networks	3.50	-0.38	-9.7
OTC	20.75	10.00	Picturetel Corp.	17.50	2.00	12.9
OTC	8.25	2.13	Proteon Inc.	5.88	2.13	56.7
OTC	14.38	2.75	Racotek Inc.	4.00	0.00	0.0
NYS	45.25	24.88	Scientific Atlanta Inc.	40.63	-1.88	-4.4
NYS	45.25	36.75	Southwestern Bell Corp.	42.50	1.63	4.0
NYS	40.25	31.38	Sprint Corp.	38.63	0.25	0.7
OTC	26.75	13.38	Standard Microsystems Corp.	19.75	-0.63	-3.1
OTC	44.75	13.00	Stratacom Inc.	32.75	0.13	0.3
OTC	33.75	13.13	Synoptics Communications	14.00	-0.75	-5.1
OTC	15.25	3.88	Telebit Corp.	4.81	-0.69	-12.5
OTC	46.00	23.00	US Robotics	33.50	0.50	1.5
NYS	50.75	38.25	US West Inc.	38.88	0.50	1.3
OTC	43.88	18.75	Wellfleet Communications	19.25	-1.31	-6.4
OTC	28.25	12.75	Xircom	20.69	0.69	3.4
OTC	26.75	13.25	Xylogics Inc.	24.75	-1.38	-5.3
OTC	29.25	11.25	Xyplex Inc.	27.81	0.06	0.2
PCs and Workstations						**UP 0.04%**
OTC	7.50	2.88	Advanced Logic Research	4.13	-0.13	-2.9
OTC	38.50	12.00	Apple Computer Inc.	33.75	-0.38	-1.1
OTC	33.00	12.00	AST Research Inc.	13.13	-0.75	-5.4
NYS	39.88	19.00	Compaq Computer Corp.	32.88	-1.75	-5.1
OTC	39.50	15.13	Dell Computer Corp.	37.50	-0.88	-2.3
OTC	25.00	9.25	Gateway 2000 Inc.	18.50	-0.63	-3.3
NYS	93.63	67.13	Hewlett Packard Co.	87.88	1.25	1.4
NYS	26.88	18.75	Silicon Graphics	25.75	1.63	6.7
OTC	31.38	18.25	Sun Microsystems Inc.	30.00	1.25	4.3
NYS	50.75	30.75	Tandy Corp.	43.38	0.75	1.8
OTC	5.13	2.38	Zeos International Ltd.	3.19	0.19	6.3
Large Systems						**UP 0.61%**
ASE	10.25	4.38	Amdahl Corp.	9.00	0.38	4.3
NYS	8.50	4.38	Convex Computer	8.13	0.13	1.6
OTC	4.25	0.50	Cray Computer	1.25	0.03	2.6
NYS	33.75	19.13	Cray Research Inc.	20.38	-0.50	-2.4
NYS	10.75	6.63	Data General Corp.	10.00	0.63	6.7
NYS	39.13	18.25	Digital Equipment Corp.	26.50	-0.25	-0.9
OTC	6.38	3.38	Encore Computer Corp.	4.56	0.06	1.4
NYS	52.25	41.38	Harris Corp.	48.63	0.50	1.0
NYS	71.38	42.50	IBM	69.75	0.88	1.3
OTC	18.75	7.75	NetFrame	12.00	1.25	11.6
OTC	26.00	3.88	Parallan Computer	4.75	-0.25	-5.0
OTC	21.75	5.38	Pyramid Technology	8.63	-0.50	-5.5
OTC	20.00	11.13	Sequent Computer Sys.	16.88	-0.75	-4.3
OTC	6.84	2.75	Sequoia Systems Inc.	4.88	0.00	0.0
NYS	38.63	22.88	Stratus Computer Inc.	35.63	-1.38	-3.7
NYS	16.50	10.00	Tandem Computers Inc.	16.50	0.88	5.6
OTC	30.00	3.88	TriCord Systems	5.50	0.06	1.1
NYS	16.50	8.63	Unisys Corp.	10.75	-0.19	-1.7
Software						**UP 3.18%**
OTC	37.00	18.00	Adobe Systems Inc.	32.75	0.13	0.4
OTC	8.13	4.38	American Software Inc.	4.63	0.00	0.0
OTC	15.75	6.75	Ask Computer Systems	13.13	0.00	0.0
OTC	66.00	37.00	Autodesk Inc.	62.56	0.94	1.5
OTC	3.88	1.75	Bachman Info. Systems	2.38	0.00	0.0
OTC	28.25	20.50	BGS Systems Inc.	25.00	0.25	1.0
OTC	71.00	40.50	BMC Software Inc.	45.25	2.75	6.5
OTC	31.00	22.50	Boole & Babbage (H)	30.75	0.00	0.0
OTC	18.25	8.50	Borland Int'l Inc.	11.38	0.50	4.6
OTC	25.00	6.75	Brock Control Systems Inc.	8.25	-1.25	-13.2
OTC	4.63	2.38	CE Software	2.81	0.19	7.1
ASE	30.34	6.25	Cheyenne Software Inc.	9.38	-1.38	-12.8
OTC	14.25	7.50	Cognos Inc.	13.00	1.25	10.6
NYS	45.88	27.38	Computer Associates (H)	44.88	0.88	2.0
NYS	5.38	2.13	Computervision Corp.	3.13	0.38	13.6
OTC	48.25	21.00	Compuware Corp.	48.25	3.50	7.8
OTC	14.00	9.00	Comshare Inc.	11.50	0.00	0.0
OTC	25.00	14.88	Corel Corp.	20.88	2.25	12.1
OTC	6.75	2.88	Easel Corp.	3.63	-0.50	-12.1
OTC	29.25	13.75	Filenet Corp.	22.75	-0.38	-1.6
OTC	25.00	3.00	4th Dimension	7.63	0.88	13.0
OTC	16.25	7.25	Frame Technology (H)	15.75	0.88	5.9
OTC	11.00	7.00	Group I Software	10.00	2.00	25.0
OTC	31.75	6.75	Gupta	10.00	0.75	8.1
OTC	12.00	5.88	Hogan Systems Inc.	6.94	0.06	0.9
OTC	37.00	18.00	IMRS (H)	37.00	0.75	2.1
OTC	41.75	11.50	Information Resources	12.75	0.75	6.3
OTC	27.38	14.25	Informix Corp. (H)	27.38	1.75	6.8
OTC	11.25	8.63	Intergraph Corp. (L)	9.00	0.25	2.9
OTC	8.75	2.50	Interleaf Inc.	4.31	-0.19	-4.2
OTC	15.50	7.50	Intersolv Inc.	15.25	2.63	20.8
OTC	50.00	27.00	Intuit Inc.	44.13	4.88	12.4
OTC	18.75	2.25	Knowledgeware Inc.	3.50	-0.13	-3.4
OTC	34.75	19.00	Legent Corp.	26.75	2.38	9.7
OTC	86.50	29.75	Lotus Development	36.88	0.38	1.0
OTC	18.00	6.00	Magic Software Enterprises	9.13	-0.31	-3.3
OTC	18.50	6.00	Manugistics Group Inc.	8.88	0.13	1.4
OTC	7.50	1.44	MathSoft	2.72	-0.03	-1.1
OTC	11.25	4.50	McAfee Associates	9.25	1.19	14.7
OTC	17.25	9.38	Mentor Graphics	11.13	0.94	9.2
OTC	27.00	11.50	Micro Focus	13.00	0.25	2.0
OTC	11.63	4.63	Microgrark Inc.	5.63	0.13	2.3
OTC	59.25	38.00	Microsoft Corp.	57.06	0.56	1.0
OTC	45.00	26.25	Oracle Corp.	43.19	-0.19	-0.4
OTC	44.75	21.50	Parametric Technology	33.00	4.75	16.8
OTC	24.50	13.38	ParcPlace Systems Inc.	21.25	2.00	10.4
OTC	48.56	26.00	Peoplesoft	48.56	5.06	11.6
OTC	6.25	3.50	Phoenix Technologies	5.50	-0.38	-6.4
OTC	69.50	26.25	Powersoft	53.75	5.00	10.3
OTC	39.75	3.50	Platinum Software	12.50	2.50	25.0
OTC	21.38	7.25	Platinum Technology	19.38	-1.13	-5.5
OTC	60.25	27.00	Progress Software Corp.	33.00	0.25	0.8
OTC	4.13	1.94	Quarterdeck Office Sys.	2.44	0.19	8.3
OTC	26.00	9.50	Rainbow Technologies Inc.	11.63	-0.75	-6.1
OTC	9.25	3.25	Rasterops (L)	3.38	-0.13	-3.6
OTC	14.50	2.88	Ross Systems	3.25	-0.38	-10.3
OTC	28.63	2.75	Sapiens Intl. Corp. N.V.	4.00	-0.13	-3.0
OTC	14.75	9.75	Softkey International Inc.	14.75	1.38	10.3
OTC	8.63	3.00	Software Publishing Corp.	4.38	0.00	0.0
OTC	10.75	5.00	State of the Art	6.63	0.13	1.9
NYS	35.63	23.88	Sterling Software Inc.	31.00	1.00	3.3
OTC	19.88	3.63	Struct. Dynamics Research	4.75	0.00	0.0
OTC	57.00	30.38	Sybase Inc.	46.00	-3.50	-7.1
OTC	20.38	9.88	Symantec Corp.	14.88	-0.50	-3.3
OTC	52.75	33.00	SynOpsys	45.25	-1.50	-3.2
OTC	18.00	11.75	System Software Assoc.	12.00	-1.50	-11.1
OTC	6.75	3.25	Trinzic Corp.	4.50	0.63	16.1
OTC	30.00	11.75	ViewLogic Systems	19.50	-0.25	-1.3
OTC	23.25	12.00	VMark Software Inc.	21.50	0.13	0.6
OTC	13.25	6.25	Walker Interactive Systems	7.38	0.19	2.6
OTC	60.00	29.25	Wall Data Inc.	32.75	2.50	8.3
Semiconductors						**UP 1.18%**
NYS	31.75	16.75	Advanced Micro Devices	29.75	-0.25	-0.8
NYS	33.88	19.38	Analog Devices Inc.	33.13	2.25	7.3
OTC	32.00	10.94	Atmel Corp.	31.75	1.19	3.9
OTC	7.50	3.63	Chips and Technologies	5.00	-0.38	-7.0
OTC	44.63	24.88	Cirrus Logic	28.13	0.88	3.2
NYS	20.50	11.25	Cypress Semiconductor Corp.	17.50	-1.63	-8.5
NYS	20.13	13.00	Dallas Semiconductor	15.50	0.00	0.0
OTC	28.75	14.75	Integrated Silicon Systems (H)	28.75	2.25	8.5
OTC	73.88	55.88	Intel Corp.	62.50	-0.81	-1.3
NYS	38.13	13.00	LSI Logic Corp. (H)	37.75	2.50	7.1
OTC	24.75	12.25	Lattice Semiconductor	18.63	-0.25	-1.3
NYS	44.88	15.16	Micron Technology	34.88	-3.38	-8.8
NYS	55.75	42.13	Motorola Inc.	53.38	0.25	0.5
NYS	25.00	14.38	National Semiconductor	15.75	0.00	0.0
OTC	14.25	6.75	Sierra Semiconductor	13.88	0.63	4.7
NYS	89.50	55.75	Texas Instruments	68.63	-4.25	-5.8
OTC	18.25	9.38	VLSI Technology	11.25	-0.38	-3.2
OTC	12.38	2.88	Weitek	4.25	0.75	21.4
ASE	20.38	4.88	Western Digital Corp.	14.75	-0.13	-0.8
OTC	59.75	29.00	Xilinx	49.88	3.38	7.3
OTC	40.75	26.50	Zilog Inc.	33.25	-0.50	-1.5
Peripherals and Subsystems						**UP 0.48%**
OTC	30.50	14.50	American Power Conversion	20.31	0.56	2.8
OTC	26.50	18.75	Bancтec Inc. (H)	25.25	-0.75	-2.9
OTC	7.75	3.25	Cambex Corp.	4.88	0.56	13.0
ASE	7.38	1.88	Cognitronics Corp.	2.13	-0.38	-15.0
NYS	20.50	9.00	Conner Peripherals	11.13	0.63	6.0
OTC	24.00	9.75	Creative Technologies Inc.	17.63	0.13	0.7
OTC	14.00	3.50	Data Race Inc.	5.88	-0.13	-2.1
ASE	10.75	4.13	Dataram Corp.	4.63	-0.38	-7.5
NYS	23.00	12.38	EMC Corp.	20.00	0.63	3.2
OTC	10.13	3.13	Emulex Corp.	9.00	-0.50	-5.3
OTC	21.00	11.75	Evans & Sutherland	12.75	0.38	3.0
OTC	21.00	10.38	Exabyte	21.00	0.88	4.3
OTC	28.50	2.63	Intelligent Info. Systems	4.00	-0.25	-5.9
OTC	4.38	2.00	Iomega Corp.	3.38	0.13	3.8
OTC	9.75	3.00	IPL Systems Inc.	3.63	0.13	3.6
OTC	28.50	13.38	Komag Inc.	26.00	2.75	11.8
OTC	8.63	4.25	Maxtor Corp.	4.75	0.00	0.0
OTC	8.75	4.88	Micropolis Corp.	6.38	0.00	0.0
OTC	22.50	10.25	Pinnacle Micro Inc.	13.00	-0.50	-3.7
OTC	20.25	6.50	Printronix Inc.	18.75	1.75	10.3
NYS	11.75	6.88	QMS Inc.	9.50	0.25	2.7
OTC	20.25	9.38	Quantum Corp.	14.94	0.06	0.4
OTC	9.13	3.63	Radius Inc.	8.63	-1.38	-13.8
NYS	17.75	6.38	Recognition International	7.63	-0.75	-9.0
NYS	6.88	3.63	Rexon Inc.	5.50	0.63	12.8
NYS	28.75	16.25	Seagate Technology	24.19	0.81	3.5
NYS	41.50	24.50	Storage Technology	29.00	-2.63	-8.3
NYS	39.00	21.38	Tektronix Inc. (H)	39.00	1.00	2.6
NYS	109.38	69.88	Xerox Corp.	106.50	2.63	2.5
Services						**UP 0.03%**
OTC	27.25	17.25	American Mgmt. Systems	23.75	0.63	2.7
NYS	4.25	2.50	Anacomp Inc.	3.00	0.25	9.1
OTC	22.00	14.50	Analysts Int'l.	16.75	0.25	1.5
NYS	56.88	47.63	Auto Data Processing	56.13	1.50	2.7
OTC	18.25	14.00	Cambridge Tech. Partners	14.75	-0.50	-3.3
NYS	27.50	17.50	Ceridian Corp.	24.63	-1.00	-3.9
NYS	24.25	16.75	Comdisco Inc.	20.75	-0.75	-3.5
OTC	12.50	6.50	Computer Horizons	12.00	0.25	2.1
NYS	45.25	29.97	Computer Sciences	43.63	0.38	0.9
NYS	10.38	6.38	Computer Task Group	9.13	0.13	1.4
NYS	28.63	6.75	CompUSA Inc.	10.50	-0.50	-4.5
OTC	12.25	6.38	Control Data Systems Inc.	6.75	-0.25	-3.6
OTC	11.00	6.13	Egghead Discount Software	7.19	0.06	0.9
NYS	38.00	26.50	General Motors E (EDS)	37.75	1.25	3.4
NYS	21.00	7.25	Inacom Corp.	9.38	0.38	4.2
OTC	28.00	13.63	Intelligent Electronics	17.25	1.13	7.0
OTC	22.50	7.00	Merisel	10.13	0.38	3.6
OTC	32.50	9.25	Microage Inc.	12.50	-1.25	-9.1
NYS	40.50	28.50	Paychex	37.63	1.63	4.5
NYS	41.50	22.25	Policy Management Sys.	40.00	0.00	0.0
NYS	28.25	19.00	Reynolds and Reynolds	25.00	-0.88	-3.4
OTC	28.50	17.00	SEI Corp.	22.00	0.75	3.5
OTC	29.38	21.50	Shared Medical Systems	27.75	-0.25	-0.9
OTC	11.00	4.88	SHL Systemhouse	5.56	0.19	3.5
OTC	25.50	9.25	Software Spectrum Inc.	12.50	-0.75	-5.7
OTC	42.75	31.50	Sungard Data Systems	35.50	-2.00	-5.3

KEY: (H) = New annual high reached in period (L) = New annual low reached in period

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Job seekers go electronic

CONTINUED FROM PAGE 1

Scheetz and others noted that companies trying to fill highly technical positions, including computer science jobs, had better investigate the Internet because many of their ideal job candidates are spending an increasing amount of time on it.

"We're in an industry where technology is king," said Michael Marchese, a recruiter at Computer Task Group, Inc. in Buffalo, N.Y. "We're grasping the Internet with both hands."

One of the most recent Web servers to go up is CareerMosaic, launched earlier this month by Bernard Hodes Advertising, Inc. in New York.

Unlike E-Span with its job listings, CareerMosaic is more of a recruitment tool that attempts to create "an employer preference," according to Tim Gibbon, executive vice president.

"We provide listings but also a lot of career and company information," Gibbon said. For instance, users can learn about a company's product lines, sites and even the local lifestyle near headquarters.

E-Span also enhanced its service recently by adding career advice, an on-line employment outlook handbook and an interactive practice interview session.

Off to a running start

To date, nine companies have home pages — the opening page of a Web hypertext document — on CareerMosaic, including such high technology stalwarts as National Semiconductor Corp., Seagate Technology, Inc. and Sun Microsystems, Inc. But along with high-tech accounts, the service is working on home pages for California-based Union Bank and other national retail, health care and telecommunications companies.

Is there a downside to employers or job seekers using these resources?

To start, only people with Internet access can see an ad or reply to it. "That's a real caveat," said Drema K. Howard, associate director of the career center at the University of Kentucky in Lexington.

So companies would be foolish to abandon conventional recruitment means in favor of a Web home page. Similarly, many firms do not know about the Internet as a place to post jobs, so job seekers should continue to read newspaper want ads, she said.

Traditional recruitment agencies in the information systems field raise similar concerns.

"We're keeping a close eye on [Internet-based services], but there doesn't seem to be much discipline for the quality of the resumes or the job opportunities," said Tom Kubiak, a partner at Halbrecht & Co. in Fairfax, Va., one of the oldest IS recruitment firms in the country.

Ill-prepared

One potential issue for employers is the possible flood of applications via electronic mail and the lack of back-end systems to sift through them.

In addition, job seekers worry about the prospect of their current employer identifying their job search. Also, the medium is clearly not appropriate for all categories of jobs, according to employment experts.

"It's quite unlikely a company will post an opening for a CFO on the Internet," Scheetz said. "First, you may not want your competition to know you have this opening. And besides, the people you most want won't be on the job market."

Web works

Here is a sampling of the Web's employment resources:

- Online Career Center, Inc.: http://www.occ.com
- Online Career resume database: occ-resumes@occ.com
- CareerMosiac: http://www.career-mosiac.com
- The Interactive Employment Network:

Landing a job via the 'net

Michael Marchese, a recruiter at Computer Task Group in Buffalo, N.Y., is enthusiastic about the Internet as a way to find workers. In a four-month trial, the company made five or six hires, and it is now interviewing another 30 to 40 job candidates.

"We're going full tilt," said Marchese, who plans to post openings in as many Internet-accessible venues as possible.

Computer Task Group used one of the first Internet-based job resources, the Online Career Center, operated by Online Career Center, Inc. in Indianapolis. A nonprofit operation backed by companies ranging from AT&T Corp. to a 12-person consultancy in Chicago, the Online Career Center is one of the most visited locations on the entire Internet.

"We get about 2 million accesses per month," said executive director Bill Warren. The Online Career Center's database of 10,000 to 12,000 jobs was first available as a gopher server and was recently joined by a World-Wide Web server.

Warren disputed the notion that only technologists use the resource. "Maybe 40% to 45% of our jobs are technical," he said. Especially since the addition of the Web server, the professions represented have expanded to include the medical, marketing and accounting fields.

Marchese's advice to others thinking of posting jobs on the Internet is to be as specific as possible in the job description to reduce the volume of incoming electronic mail and resumes. Computer Task Group also created a job ad template and a resume database to help streamline the process on the back end.

— Ellis Booker

Creators of the Arpanet, forerunner of the Internet, discuss the future of the 'net. See page 101. **HP bundles** protocols with MPE/IX. See page 65. **Prodigy adds** Internet Usenet; and **Vendors rush to give users** Internet access. See stories page 66.

CA bolsters Unicenter with freebies

CONTINUED FROM PAGE 1

server versions range from $15,000 to $35,000, according to Yogesh Gupta, senior vice president of open systems at CA. Gupta said CA-Unicenter/Star server versions for Hewlett-Packard Co.'s HP/UX, Sun Microsystems, Inc.'s Solaris, IBM's AIX and other Unix operating environments will ship in November.

The catch

While the software giveaway sounds like a steal, users will still be required to purchase other functional server modules, such as scheduling and security components, to make the system work.

"You're not getting a free lunch here. The training is free, and you're picking up free software, but you can't use the software without other functional components," said Jonathan Eunice, research director at Illuminata, a Hollis, N.H., systems software consultancy. "It's like giving you the turbocharger and selling you the car."

"This gets clients to move into the environment. If they like the program, they'll buy more copies [of Unicenter server software], and that's the longer-term payback," Gupta said.

"You're not getting a free lunch here. The training is free, and you're picking up free software, but you can't use the software without other functional components."

— Jonathan Eunice, research director, Illuminata

More information required

Users said the promotion would likely influence their purchasing decisions, though some customers pressed for more details.

"We went through the training course [in July], and we're supposed to receive our software [in October]. But I'm not sure if the maintenance is going to be free or not," said Peter A. Ginocchio, manager of computer operations at Central States Health and Welfare and Pension Fund in Rosemont, Ill. Central States Health and Welfare plans to evaluate the package for centralized security and scheduling as well as utilization in its IBM 3090-600 mainframe environment.

CA has not yet decided if it will waive first-year maintenance fees on the workstation and server packages, Gupta said.

Still, prospective customers seem genuinely interested in the promotional giveaway, which one analyst likened to a sales pitch for a condominium timeshare.

"We're in the market for systems management tools, so we'll certainly consider CA along with the other vendors," said Crystal Kennedy, director of information services at The Dannon Co. in Tarrytown, N.Y., which uses the HP/UX Unix environment to run its manufacturing, distribution and some sales and marketing applications.

M. Nicholas Lovelace, an information systems officer at Connecticut Mutual Life Insurance Co. in Hartford, who attended the CA program, said the product giveaways tie in nicely with the vendor's recent Unicenter price reductions [CW, Aug. 29].

"Based on what they had originally been charging for Unicenter, this is a good dollar savings," Lovelace said. Connecticut Mutual Life plans to evaluate CA-Unicenter/Star to manage its IBM MVS, AIX and other environments, he added.

Here's the pitch

UNDER CA'S FREE TRAINING PROGRAM, USERS WILL BE ABLE TO FAMILIARIZE THEMSELVES WITH THE GUI-BASED CA-UNICENTER/STAR WORKSTATION PACKAGE. HERE'S HOW THE PROGRAM WORKS:

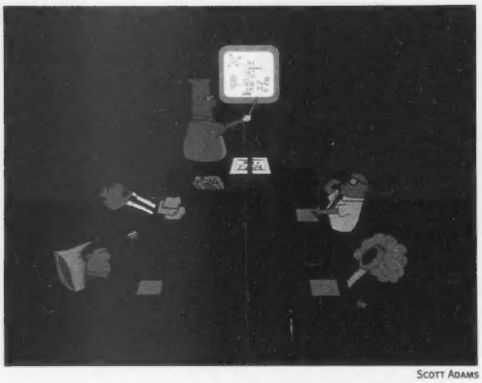
Techies/students receive three-hour training sessions on CA-Unicenter/Star.

User executives (i.e. CFOs) are given sales briefings on CA-Unicenter and Star by CA sales representatives.

Each techie receives one free copy of a CA-Unicenter/Star workstation package while the user executive receives one free copy of CA-Unicenter/Star server software.

CA-Unicenter/Star workstation packages are valued at $995 per seat. The CA-Unicenter/Star server component is valued at $15,000 to $35,000 for each IBM MVS server.

Wysiwyg



SCOTT ADAMS

DILBERT AT YOUR DESK

Fans of Scott Adams' comic strip Dilbert can now enjoy watching Dilbert's cubicle adventures on their computer screen. Delrina Corp. and Adams have teamed up to offer the Dilbert Screen Saver Collection for Windows and Macintosh. Some of the screen savers came from reader suggestions at his Internet address, scottadams@aol.com, which he publishes in the strip. Screen savers include the people-eating paper shredder, Dilbert and Dogbert being sucked into cyberspace through a computer screen, Dogbert terrorizing workers with static electricity and a meeting that will make people shudder. *The collection costs $39 from Delrina, (408) 363-2345.*

The collection includes the following titles:

Cyberspace
Dilbert Presents (pictured above)
Best of Dilbert
Thor, Dog of Thunder
Saint Dogbert
Mad Shredder
Bob Gives Wedgies
Conference Room of Horror
Dilbert at Work
Whack a Lawyer
Happy Ratbert
Secretary with Crossbow

Now for something completely interesting...

interesting *adj.* In hacker's parlance, this word is not simply synonymous with 'intriguing,' but has strong connotations of 'annoying,' or 'difficult,' or both.

Here is a hacker's view of recent discussions in humor newsgroups about the extent of Cobol's prevalence in computer systems:

Cobol fingers *n.* A hypothetical disease one might get from coding in Cobol. The language requires code verbose beyond all reason; thus it is alleged that programming too much in Cobol causes one's fingers to wear down to stubs by endless typing.

Source: *The New Hacker's Dictionary* by Eric Raymond

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Inside Lines

HP takes brakes off AnyLAN

Hewlett-Packard will announce today what it calls the industry's most affordable high-speed networking solution: its 100VG-AnyLAN networking hubs, which are beginning to ship in volume. Price cuts of up to 25% on its 10/100VG selectable adapters are also in the cards.

The more things change...

So much for IBM PC Co. fixing its forecasting problems. Callers late last week to IBM's PC Direct line who wanted to buy one of the company's recently released multimedia home computers, the Aptiva series, found the models sold out after one week. They will not be available until November or December. This does not portend well for the long-term availability of the IBM PC Desktop series, the major new line of systems IBM plans to announce later this month.

Just in time for the seven-year itch

A six-year wait for new hardware will finally pay off for stubborn System/36 holdouts this Wednesday when IBM introduces a PowerPC-based machine that runs the System/36's SSP operating system. IBM gave in after trying unsuccessfully to migrate System/36 shops to its AS/400 line. The new System/36 machine is a forerunner to a full PowerPC-based AS/400 family due out in mid-1995 with support for OS/400 and SSP.

Ever wish you had a secretary?

Wildfire Communications will tomorrow announce a voice-recognition interface that it thinks can serve some secretarial functions, according to sources close to the company. For instance, a user could tell Wildfire to get a name from a database and dial the phone number, and it would automatically do it, sources said. The technology uses a Pentium processor in a separate dedicated box that sits one to a site.

Notes to add EDI edge

Lotus is in partnership discussions with leading EDI vendors to build EDI translator bridges to Notes, according to a Notes product manager. That would allow Notes users to exchange transactional EDI data, such as purchase orders, and unstructured Notes data, such as memos and images, with trading partners via Notes. The official did not name the pending EDI partners.

Decide already

At a recent HP user group meeting, there was some candid talk from Carol Mills, general manager of HP's Unix server division, about the dim prospects for Microsoft's Windows NT on HP's PA-RISC platform. Mills said NT will probably not become a viable enterprise-level operating system until HP and Intel offer their merged architecture — a development not expected for at least three years. But HP could still change its mind. The vendor has already completed an NT port to PA-RISC in the laboratory.

Direct-marketing giant Gateway 2000 is once again attracting serious user flak on one of the Internet news groups. The latest controversy relates to its decision to charge $75 for a Flash BIOS upgrade, which several users complain is far too much to pay, especially because it was advertised as an easy and cheap upgrade option. Meanwhile, Gateway supporters counter that the Flash BIOS is being sourced from another company and is an optional upgrade that can be purchased directly from the BIOS vendor itself — for the same price. The hubbub led one particularly exasperated supporter to say: "There are some very real negatives that you have to deal with at Gateway, but damn it if some of the posts don't lead me to believe that they'll be blamed for the crucifixion of Christ any day now." If you have any technology angst, or other news items or tips you'd like to get off your chest, call our 24-hour voice-mail tip line at (508) 820-8555 or our toll-free number at (800) 343-6474. News editor Maryfran Johnson can be reached by phone at (508) 820-8179, via the Internet at mjohnson@cw.com or through MCI Mail at 590-8017.

Why would KPMG Peat Marwick's Government Services practice want to move CICS applications to an open environment?

LETS JUST SAY THEY LIKE SUPPORTING THEIR CLIENTS.

This could easily have been a story about the customers who got away. Except they didn't get away. Because the Government Services Practice of KPMG Peat Marwick made a strategic decision to move their key product, FAMIS – a financial and accounting package developed for use on IBM mainframes – to the UNIX* platform. That way, Peat Marwick reasoned, they'd be able to satisfy their clients' demand for open systems applications. And keep them from becoming ex-clients. And it worked. Thanks in no small part to UniKix Technologies.

We'll let Bill Blaustein, a Principal of the Government Services Practice, tell the story:

"It's so incredibly easy, we are now able to do it in our spare time.

"KPMG Peat Marwick has long been the dominant vendor in the government market. In fact, we introduced FAMIS to our clients in the early 1970's, when many were IBM mainframe customers.

BILL BLAUSTEIN

"But technology changes. And by 1992, we found ourselves faced with the unfortunate reality that our product was linked to a technology that was highly proprietary and not at all cost effective.

"Of various companies in the CICS downsizing business, UniKix Technologies was the only vendor who could move source code without having to change or re-write it. We checked their references and found that they were every bit as good as we thought, and great with service and support.

KPMG

"The results were that in two weeks, without any prior UNIX or UniKix experience, we moved 300 programs from the mainframe to a UNIX environment without a single code modification.

"We were able to immediately begin selling the product in this new configuration. In fact, we promptly sold an existing client who otherwise would have become an ex-client. And we are now able to participate in bids that we had to pass up before.

"UniKix Technologies provided us with a competitive advantage thanks to their UniKix solution, and we look forward to continuing success well into the 21st Century."

If you think your business could benefit from a similar advantage, we suggest you call UniKix Technologies at **1-800-765-2826** for a free copy of *Critical Success Factors in Downsizing*.

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